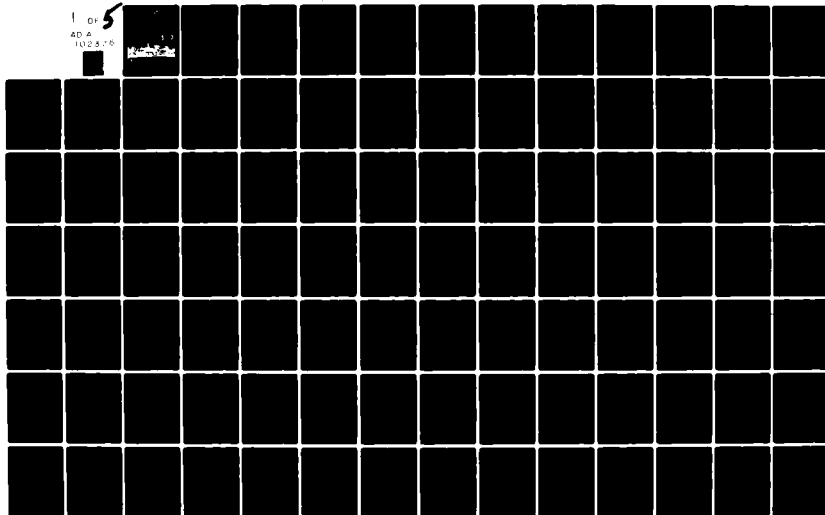
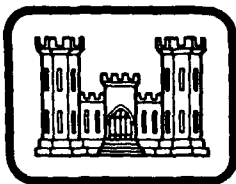


AD-A102 376 ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG MS F/G 8/3
BEACH NOURISHMENT TECHNIQUES, REPORT 4, WAVE CLIMATES FOR SELEC--ETC(U)
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TECHNICAL REPORT H-76-13-4-APP

BEACH NOURISHMENT TECHNIQUES.

Report 4.

WAVE CLIMATES FOR SELECTED U. S. OFFSHORE
BEACH NOURISHMENT PROJECTS.

APPENDIXES A-K.

15 by
Donald L. Durham, Lyndell Z. Hales, Thomas W. Richardson

Hydraulics Laboratory

U. S. Army Engineer Waterways Experiment Station
P. O. Box 631, Vicksburg, Miss. 39180

11 April 1981

Report 4 of a Series

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APPENDIX A: WAVE-HEIGHT COEFFICIENTS AND APPROACH AZIMUTHS

1. Wave-height coefficients (combined refraction and shoaling coefficients) and approach azimuths for various wave period classes and deepwater approach azimuths* resulting from refraction analyses of 10 potential offshore beach nourishment projects are given in Tables A1-A9 and A11 and A12. These coefficients and approach azimuths are applied to deepwater wave statistics to obtain an estimation of the wave climate at the proposed project locations.

2. For those sites on the Atlantic, Gulf, and Great Lakes, the deepwater wave characteristics were determined from the Synoptic Ship-board Meteorological Observation (SSMO) data tapes. The deepwater wave climate for the Redondo Beach, Calif., site was determined from hindcast wave statistics developed for the California Department of Navigation and Ocean Development (DNOD) and Marine Advisers (MA).

3. The wave-height coefficients show the effect of varying wave period on wave-height amplification for different directions-of-approach in deep water. The site approach azimuths show the effect of varying period on the propagation azimuths at the project site. Additionally, for the Redondo Beach, Calif., site, Table A10 also indicates the effect of island sheltering on the changes in both direction-of-approach and wave height before the wave climate has propagated from deep water.

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* The deepwater approach azimuths given are the ones used as input to the refraction analysis at each site; i.e., the center directions of 30-deg azimuth segments. See paragraph 18 of the main text for a more detailed explanation.

Table A1
Wave Height Coefficients and Approach Azimuths, Borrow Area, Revere Beach, Mass.

Deep- Water Approach Azimuth, deg	Wave Height Coefficients for										Approach Azimuths, deg., at									
	Cited Periods, sec										Cited Periods, sec									
	<6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	<6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22
30	1.00	0.87	0.99	1.05	1.00	0.93	1.69	1.28	1.3	1.37	30	30	30	60	60	60	60	60	60	60
60	1.00	1.00	1.13	1.17	1.13	1.24	1.23	1.04	1.02	1.10	60	60	60	60	60	60	60	60	60	60
90	1.00	1.08	0.92	0.85	0.77	0.78	0.84	1.00	0.98	0.89	90	90	90	90	90	60	60	60	60	60

Table A2
Wave Height Coefficients and Approach Azimuths, Between Borrow and Fill Areas, Rockaway Beach, N. Y.

Deep- Water Approach Azimuth, deg	Wave Height Coefficients for										Approach Azimuths, deg, at									
	Cited Periods, sec										Cited Periods, sec									
	<6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	<6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22
90	0.98	0.78	0.80	0.93	1.10	1.20	1.28	1.38	1.45	1.50	90	120	120	120	120	120	120	120	120	120
120	0.98	1.36	1.00	0.73	0.77	0.83	0.93	0.97	0.80	1.00	120	120	120	150	150	150	150	150	150	150
150	1.00	1.61	0.76	0.78	0.73	0.69	0.87	0.90	0.92	0.93	150	150	150	150	150	150	150	150	150	150
180	0.98	1.15	0.60	0.43	0.37	0.28	0.25	0.20	0.18	0.29	180	180	180	150	150	150	150	150	150	150

Table A3
Wave Height Coefficients and Approach Velocities, Morrow Area, Carolina Beach, N. C.

[illegible]

Table A4
Wave Height Coefficients and Approach Azimuths, Fill Area, Carolina Beach N. C.

[illegible]

Table A5

Wave Height Coefficients and Approach Azimuths Between Borrow and Fill Areas, Nassau County, Fla.

Deep- Water Approach Azimuth, deg	Wave Height Coefficients for										Approach Azimuths, deg, at									
	Cited Periods, sec										Cited Periods, sec									
	<6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	<6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22
0	0.25	0.30	0.40	0.43	0.45	0.47	0.50	0.43	0.62	0.60	30	30	30	30	30	30	60	60	60	60
30	0.50	0.45	0.43	0.58	0.46	0.63	0.65	0.76	0.76	0.85	60	60	60	60	60	60	60	60	90	60
60	0.98	0.73	0.44	0.56	0.58	0.74	0.47	0.62	0.55	0.52	60	60	60	60	60	60	60	60	60	60
90	1.10	0.71	0.40	0.39	0.49	0.44	0.59	0.70	0.63	0.61	90	90	90	90	90	90	90	90	90	90
120	1.13	0.58	0.26	0.35	0.45	0.37	0.33	0.31	0.37	0.40	120	120	120	120	90	90	90	90	90	90
150	1.20	0.70	0.65	0.69	0.73	0.88	0.94	1.01	1.06	0.96	150	150	150	120	120	120	120	120	120	120
180	1.28	0.95	0.87	0.92	0.98	1.02	0.80	1.15	1.10	1.30	150	150	150	150	150	150	150	150	150	150

Table A6

Wave Height Coefficients and Approach Azimuths Between Borrow and Fill Areas, Dade County, Fla.

Deep- Water Approach Azimuth, deg	Wave Height Coefficients for										Approach Azimuths, deg, at									
	Cited Periods, sec										Cited Periods, sec									
	<6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	<6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22
0	0.56	0.45	0.48	0.42	0.43	0.59	0.59	0.66	0.77	1.04	30	30	30	60	60	60	60	60	90	90
30	0.97	0.76	0.86	0.90	0.93	1.06	1.10	1.14	1.16	1.24	30	60	60	60	60	60	60	60	90	90
60	0.94	0.96	0.99	1.03	1.11	1.24	1.30	1.29	1.38	1.39	60	60	60	90	90	90	90	90	90	90
90	0.92	0.92	1.04	1.08	1.22	1.32	1.41	1.43	1.45	1.47	90	90	90	90	90	90	90	90	90	90
120	0.95	1.01	1.01	1.10	1.13	1.29	1.35	1.45	1.55	1.66	120	120	120	90	90	90	90	90	90	90
150	0.93	0.85	0.88	0.90	0.83	0.96	1.29	1.45	1.59	1.79	150	120	120	120	120	90	90	90	90	90
180	0.57	0.23	0.30	0.41	0.47	0.50	0.81	0.99	1.31	1.29	150	150	120	120	120	120	120	90	90	90

Table A7

Wave Height Coefficients and Approach Azimuths, Fill Area, Treasure Island, Fla.

Deep- Water Approach Azimuth, deg	Wave Height Coefficients for Cited Periods, sec										Approach Azimuths, deg, at Cited Periods, sec									
	<6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	<6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22
180	1.39	1.12	1.06	1.20	1.25	1.35	1.45	1.53	1.58	1.66	210	210	210	210	210	210	210	210	210	210
210	1.11	0.90	0.90	1.07	1.14	1.23	1.31	1.29	1.37	1.53	210	210	210	210	210	210	210	210	210	210
240	0.89	0.93	1.00	1.08	1.18	1.29	1.40	1.45	1.54	1.45	240	240	240	240	240	240	240	240	240	240
270	1.37	1.22	1.40	1.35	1.32	1.40	1.50	1.60	1.68	1.74	270	270	270	270	270	270	270	270	270	270
300	1.15	1.30	1.44	1.43	1.51	1.49	1.59	1.70	1.77	1.80	270	270	270	270	270	270	270	270	270	270
330	0.40	0.57	0.77	0.80	0.90	0.78	1.10	0.88	1.10	0.73	300	300	300	300	300	300	300	300	300	300

Table A8

Wave Height Coefficients and Approach Azimuths Between Borrow and Fill Areas, Panama City, Fla.

Deep- Water Approach Azimuth, deg	Wave Height Coefficients for Cited Periods, sec										Approach Azimuths, deg, at Cited Periods, sec									
	<6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	<6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22
150	0.87	0.92	0.92	0.93	0.90	1.15	1.24	1.24	1.23	1.21	150	180	180	180	180	180	180	180	180	180
180	0.89	1.22	1.15	1.18	1.32	1.18	1.47	1.38	1.32	1.45	180	180	180	180	180	210	210	210	210	210
210	0.90	1.38	1.20	1.09	1.23	1.33	1.29	1.29	1.37	1.49	210	210	210	210	210	210	210	210	210	210
240	0.91	1.28	0.94	0.93	0.93	1.13	1.01	1.14	1.17	1.19	240	240	240	240	240	240	240	240	240	240
270	0.90	1.05	0.88	0.86	0.87	0.95	1.06	1.19	1.32	1.26	270	240	240	240	240	240	240	240	240	240
300	0.76	0.66	0.86	0.80	0.76	0.92	0.87	0.86	1.02	1.05	300	270	270	270	270	270	240	240	240	240

Wave Height Coefficients and Approach Azimuths, Redondo Beach, Calif.

[illegible]

Table A10
Redondo Beach, Calif., Island

Sheltering Effects

<u>Period</u> <u>sec</u>	<u>Deepwater</u> <u>Azimuth</u> <u>deg</u>	<u>Sheltered</u> <u>Azimuth</u> <u>deg</u>	<u>Wave-Height</u> <u>Coefficient</u>
5	160	205	0.08
7	160	205	0.06
5	170	209	0.30
7	170	209	0.29
9	170	210	0.28
13	170	211	0.24
15	170	212	0.21
17	170	214	0.08
5	180	214	0.44
7	180	214	0.43
9	180	214	0.43
13	180	216	0.40
15	180	216	0.37
17	180	219	0.30
19	180	222	0.21
5	190	218	0.56
7	190	217	0.54
9	190	217	0.52
13	190	218	0.48
15	190	218	0.45
17	190	221	0.48
19	190	224	0.30
5	200	220	0.63
7	200	219	0.60
9	200	218	0.56
13	200	218	0.52

(Continued)

(Sheet 1 of 5)

Table A10 (Continued)

Period sec	Deepwater Azimuth deg	Sheltered Azimuth deg	Wave-Height Coefficient
15	200	219	0.49
17	200	221	0.42
19	200	224	0.33
5	210	226	0.72
7	210	225	0.69
9	210	224	0.65
13	210	221	0.56
15	210	219	0.51
17	210	221	0.44
19	210	224	0.35
5	220	231	0.80
7	220	231	0.77
9	220	231	0.73
13	220	230	0.64
15	220	226	0.57
17	220	227	0.49
19	220	229	0.39
5	230	236	0.86
7	230	236	0.82
9	230	236	0.78
11	230	236	0.74
13	230	233	0.66
15	230	228	0.57
17	230	229	0.49
19	230	230	0.40
5	240	240	0.87
7	240	239	0.83
9	240	239	0.79

(Continued)

(Sheet 2 of 5)

Table A10 (Continued)

<u>Period sec</u>	<u>Deepwater Azimuth deg</u>	<u>Sheltered Azimuth deg</u>	<u>Wave-Height Coefficient</u>
5	250	245	0.88
7	250	245	0.84
9	250	244	0.80
11	250	244	0.75
13	250	240	0.66
15	250	234	0.55
17	250	234	0.47
5	260	252	0.82
7	260	252	0.78
9	260	252	0.74
11	260	252	0.69
13	260	248	0.59
17	260	237	0.43
5	270	261	0.79
7	270	258	0.71
9	270	258	0.66
11	270	259	0.61
13	270	258	0.50
15	270	255	0.36
17	270	252	0.31
5	280	267	0.72
7	280	264	0.64
9	280	263	0.60
11	280	263	0.56
13	280	263	0.45
15	280	264	0.31
17	280	263	0.25
5	290	267	0.60

(Continued)

(Sheet 3 of 5)

Table A10 (Continued)

Period sec	Deepwater Azimuth deg	Sheltered Azimuth deg	Wave-Height Coefficient
7	290	266	0.58
9	290	265	0.56
11	290	264	0.53
13	290	264	0.42
15	290	265	0.29
17	290	264	0.23
5	300	272	0.49
7	300	271	0.47
9	300	270	0.44
11	300	269	0.42
13	300	268	0.34
15	300	266	0.26
17	300	265	0.21
5	310	279	0.37
7	310	279	0.34
9	310	278	0.31
11	310	277	0.28
13	310	283	0.18
15	310	288	0.12
17	310	288	0.10
5	320	287	0.25
7	320	287	0.23
9	320	287	0.20
11	320	287	0.18
13	320	288	0.15
15	320	288	0.11
17	320	288	0.09
5	330	288	0.19

(Continued)

(Sheet 4 of 5)

Table A10 (Concluded)

Period Sec	Deepwater Azimuth deg	Shoaled Azimuth deg	Wave-Height Coefficient
7	330	287	0.19
9	330	287	0.18
11	330	287	0.16
13	330	288	0.14
15	330	288	0.10
17	330	288	0.08

Table A11

Wave Height Coefficients and Approach Azimuths, Fill Area, Indianones, Ind.

Deep- Water Approach Azimuth, deg	Wave Height Coefficients for											Approach Azimuths, deg, at				
	Cited Periods, sec											Cited Periods, sec				
	<6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	22-24	24-26	<6	6-8	8-10	10-12	12-14
300	0.91	1.63	1.49	1.50	1.83	1.48	1.85	2.06	1.77	1.21	3.09	330	330	330	330	330
330	0.93	1.60	1.19	1.57	1.81	1.42	1.60	1.60	1.70	1.79	330	330	330	330	330	330
0	0.91	1.33	1.41	1.57	1.48	1.52	1.70	1.84	1.91	1.89	0	0	0	0	0	0
30	0.84	1.44	1.38	1.31	1.28	1.50	1.42	1.47	1.39	1.42	30	0	0	0	0	0
60	0.55	0.40	0.46	0.56	0.60	0.73	0.78	0.85	0.90	0.80	30	0	0	0	0	0

Table A12

Wave Height Coefficients and Approach Azimuths, Fill Area, Presque Isle, Pa.

Deep- Water Approach Azimuth, deg	Wave Height Coefficients for											Approach Azimuths, deg, at				
	Cited Periods, sec											Cited Periods, sec				
	<6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	22-24	<6	6-8	8-10	10-12	12-14	14-16
270	1.00	1.27	1.46	1.68	1.66	1.45	1.50	1.77	1.70	1.80	270	270	270	300	300	300
300	0.95	1.07	1.17	1.25	1.36	1.45	1.54	1.62	1.68	1.75	300	300	300	300	300	300
330	0.95	1.03	1.16	1.27	1.36	1.47	1.59	1.64	1.74	1.78	330	330	330	330	330	330
0	0.87	0.93	1.04	1.08	1.16	1.26	1.31	1.44	1.50	1.56	0	0	330	330	330	330
30	0.68	0.83	1.04	1.18	1.19	1.17	1.24	1.31	1.39	1.46	0	0	0	0	0	0
60	0.53	0.57	0.75	0.74	0.73	0.80	0.80	0.88	0.94	0.94	30	30	30	30	30	30

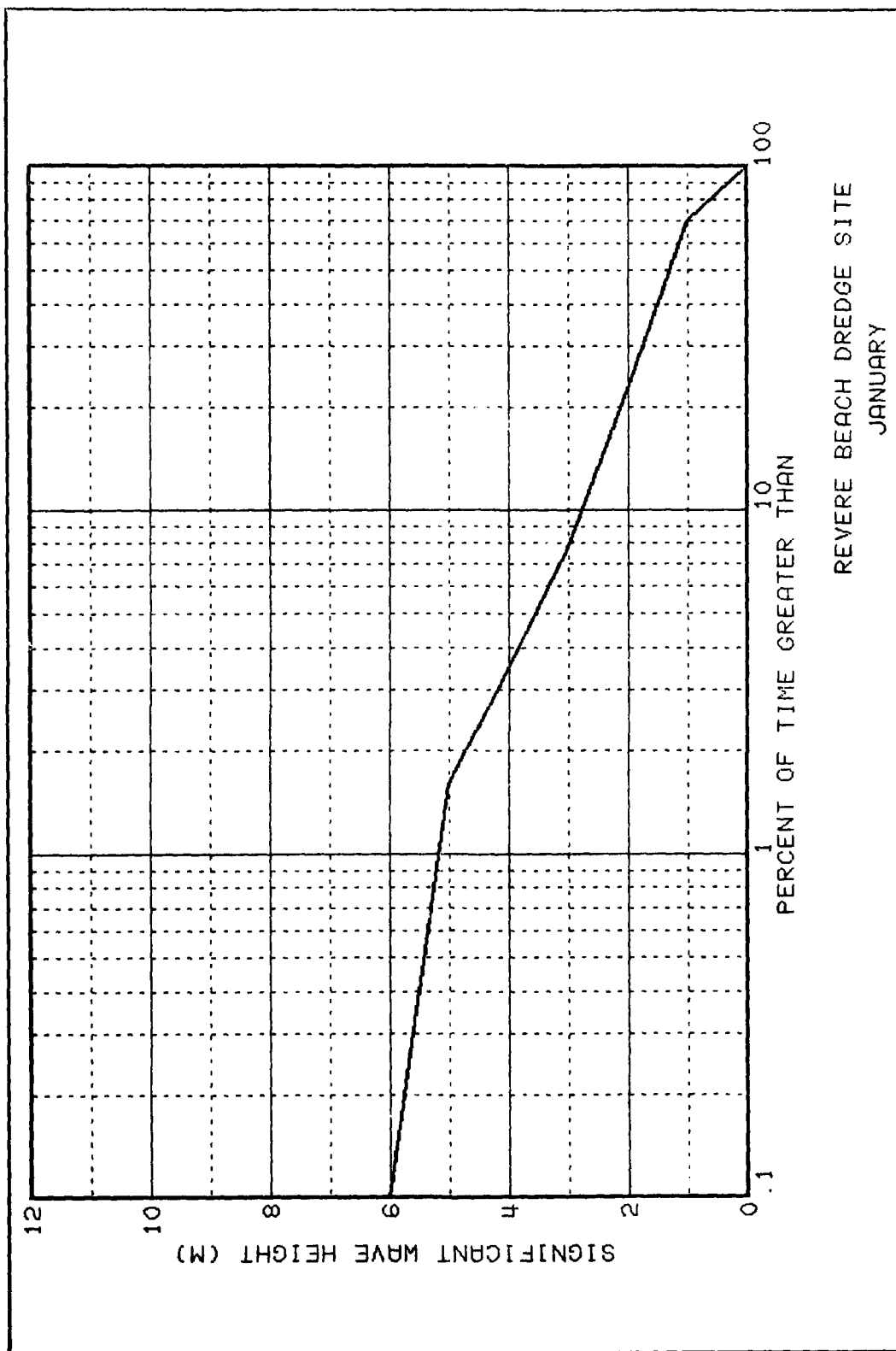
APPENDIX B: AVERAGE WAVE CLIMATE AT REVERE BEACH, MASS.

1. Appendix B contains the following information for the Revere Beach, Mass., sand borrow site:

- a. Tabulations of monthly percent occurrence of wave-height/period combinations.
- b. Tabulations of annual percent occurrence by azimuth direction of wave-height/period combinations.
- c. Plots of monthly significant wave-height occurrence in terms of the total percent time per month that these heights are exceeded.

REVERE BEACH DREDGE SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JANUARY

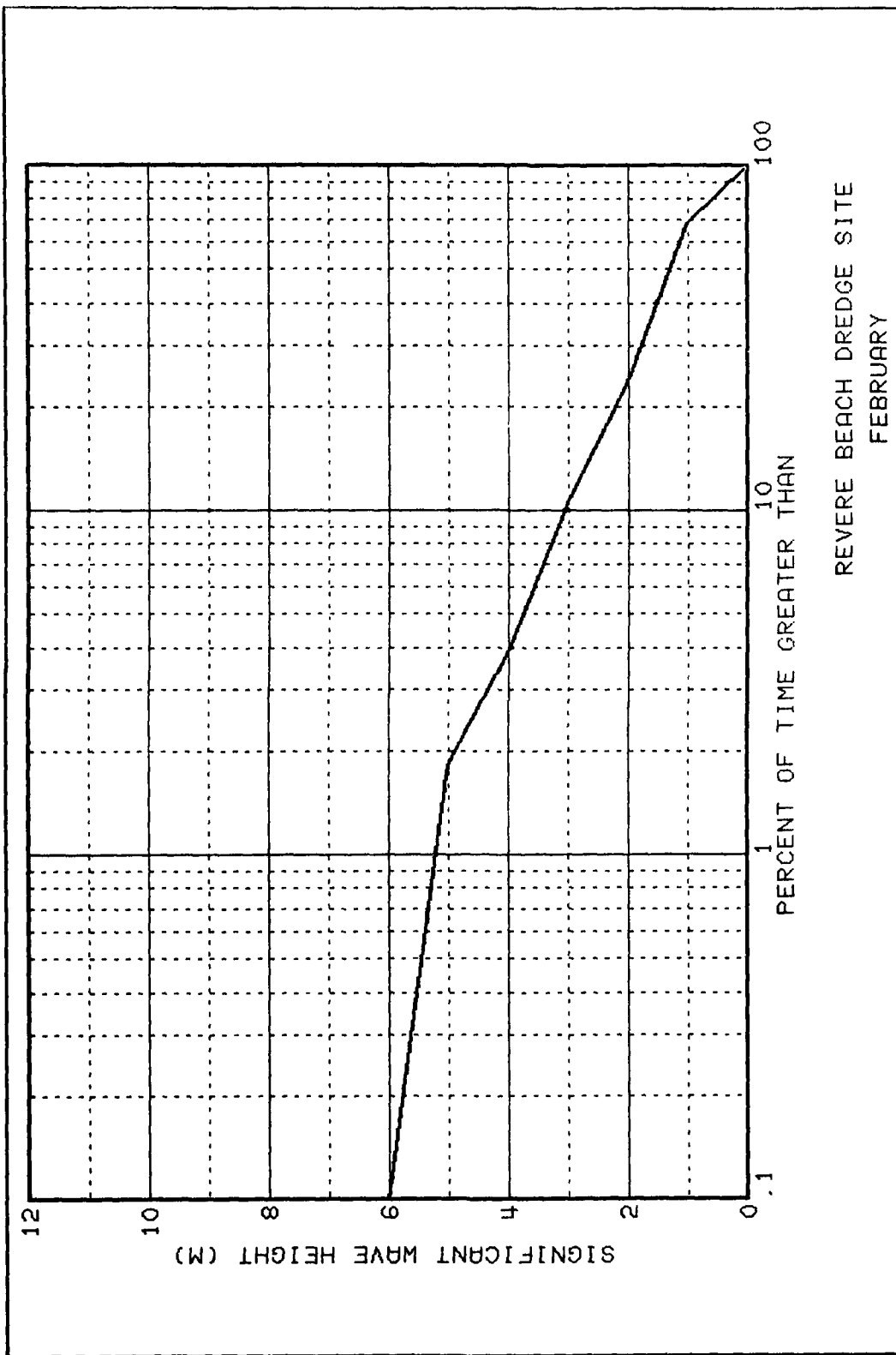
HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	28.05	1.53	0.31	0.00	0.27	0.00	0.00	0.00	0.00	0.00	30.15
01-02	37.48	7.32	1.50	0.29	0.64	0.17	0.00	0.00	0.00	0.00	47.40
02-03	5.49	5.74	1.99	0.75	0.57	0.13	0.00	0.00	0.00	0.00	14.66
03-04	0.00	1.83	1.64	0.41	0.45	0.00	0.00	0.00	0.00	0.00	4.32
04-05	0.00	0.21	1.57	0.09	0.00	0.00	0.00	0.00	0.00	0.00	1.87
05-06	0.82	0.00	0.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	71.83	16.62	7.78	1.53	1.93	0.30	0.00	0.00	0.00	0.00	



REVERE BEACH DREDGE SITE
JANUARY

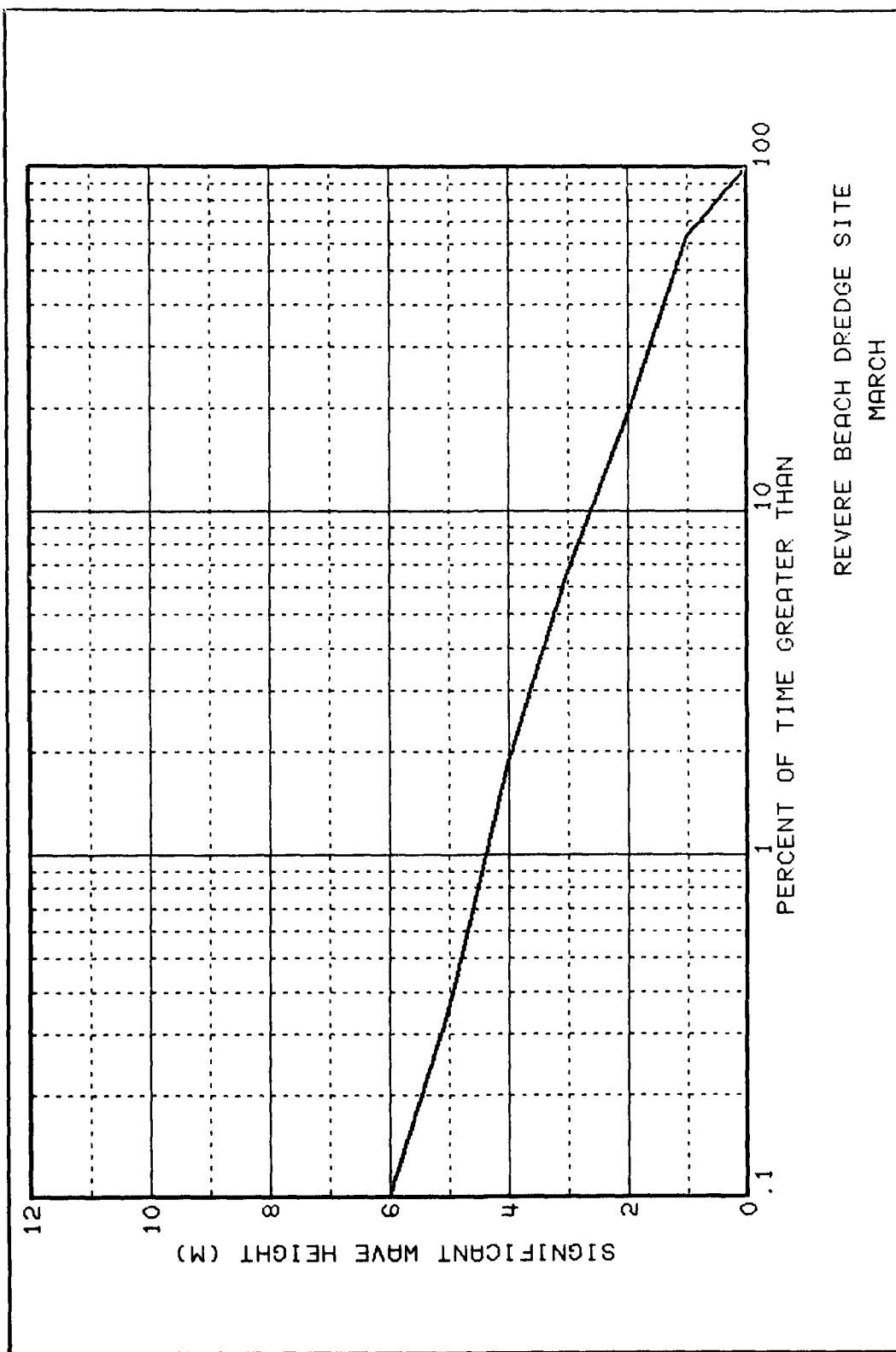
REVERE BEACH DREDGE SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	28.46	1.29	1.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00		31.50
01-02	36.78	5.64	2.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00		44.96
02-03	6.81	4.02	2.18	0.00	0.00	0.05	0.00	0.00	0.00	0.00		13.06
03-04	3.64	1.32	1.26	0.00	0.22	0.17	0.00	0.00	0.00	0.00		6.62
04-05	0.65	0.73	0.44	0.07	0.00	0.17	0.00	0.00	0.00	0.00		2.06
05-06	0.00	0.20	0.25	1.13	0.00	0.24	0.00	0.00	0.00	0.00		1.81
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	76.34	13.21	8.42	1.19	0.22	0.63	0.00	0.00	0.00	0.00		0.00



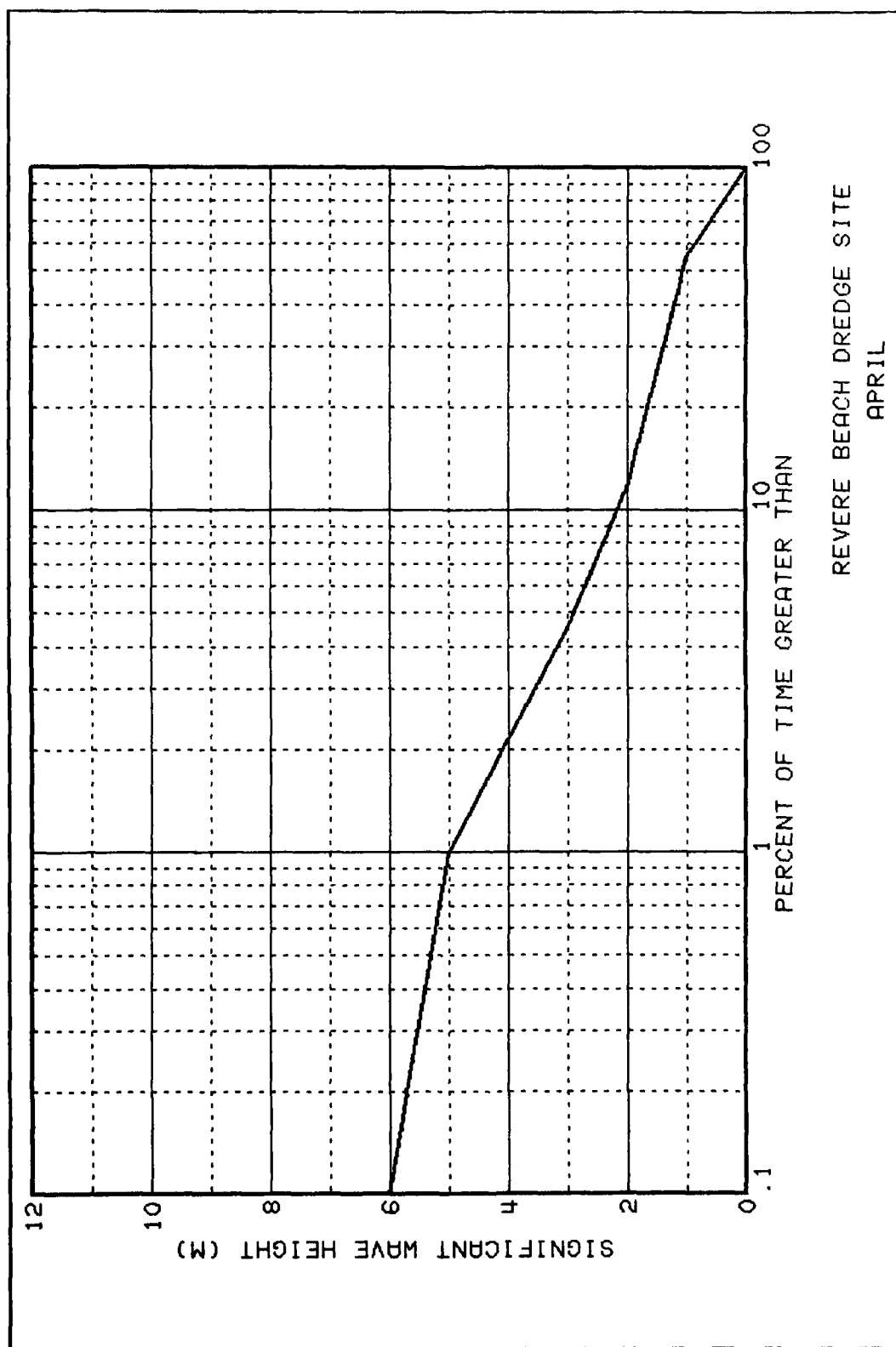
REVERE BEACH DREDGE SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MARCH

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	34.87	1.80	0.26	0.20	0.05	0.00	0.00	0.00	0.00	0.00		37.19
01-02	37.69	4.17	1.24	0.20	0.47	0.00	0.00	0.00	0.00	0.00		43.78
02-03	6.96	4.14	0.77	0.21	0.14	0.14	0.00	0.00	0.00	0.00		12.37
03-04	1.07	1.99	0.89	0.35	0.30	0.19	0.00	0.00	0.00	0.00		4.79
04-05	0.00	0.65	0.38	0.25	0.22	0.00	0.00	0.00	0.00	0.00		1.50
05-06	0.16	0.00	0.17	0.02	0.00	0.00	0.00	0.00	0.00	0.00		0.35
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	80.76	12.76	3.71	1.23	1.19	0.33	0.00	0.00	0.00	0.00		



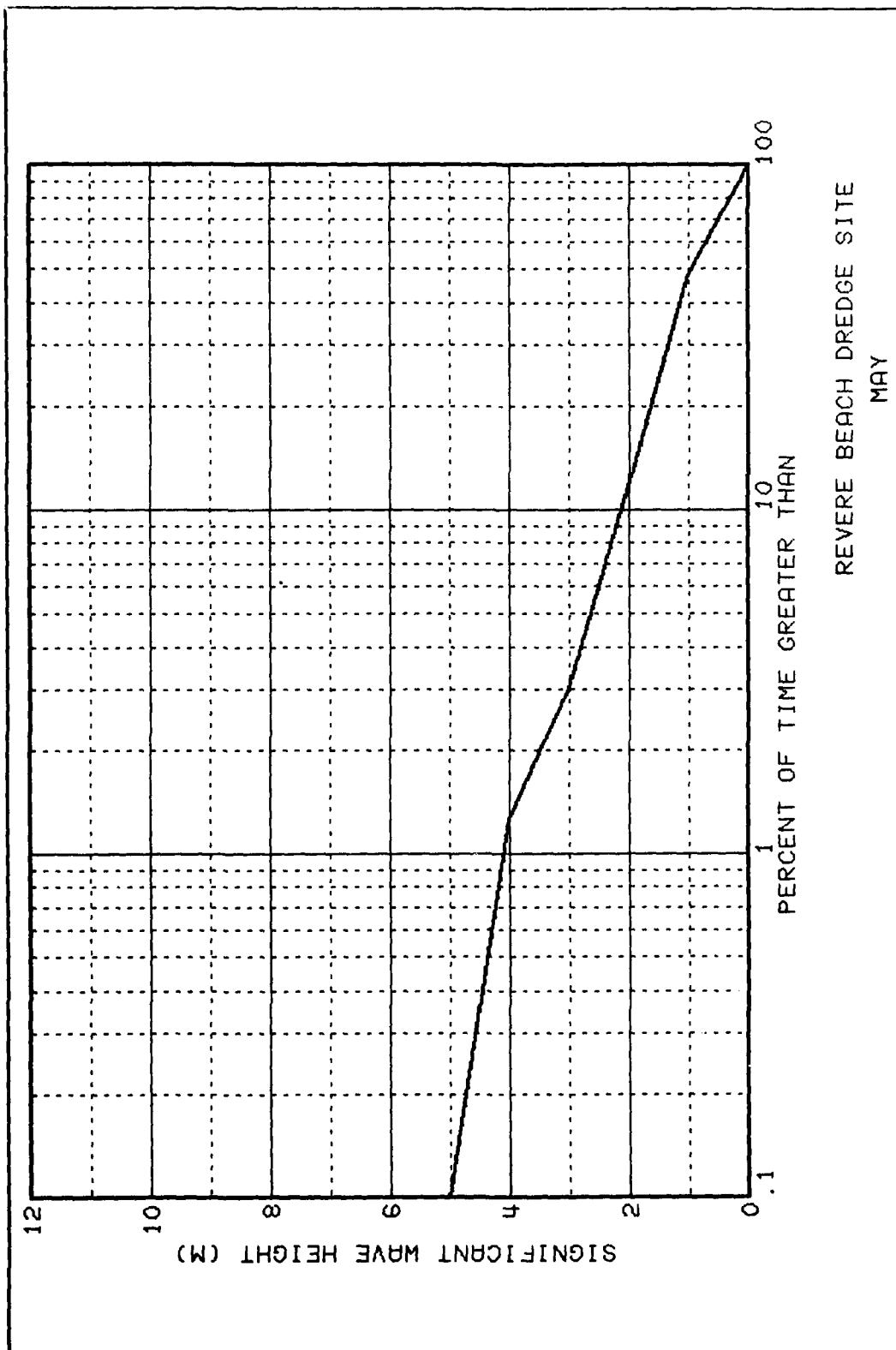
REVERE BEACH DREDGE SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR APRIL

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	39.28	3.63	2.03	0.08	0.00	0.00	0.00	0.00	0.00	0.00		45.02
01-02	33.11	7.47	1.56	0.62	0.60	0.00	0.00	0.00	0.00	0.00		43.36
02-03	2.45	2.94	1.12	0.22	0.23	0.18	0.00	0.00	0.00	0.00		7.13
03-04	0.86	0.53	0.61	0.10	0.21	0.03	0.00	0.00	0.00	0.00		2.34
04-05	0.22	0.00	0.61	0.32	0.00	0.00	0.00	0.00	0.00	0.00		1.15
05-06	0.00	0.00	0.48	0.06	0.45	0.00	0.00	0.00	0.00	0.00		0.93
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	75.93	14.57	5.39	1.39	1.49	0.21	0.00	0.00	0.00	0.00		0.00



REVERE BEACH DREDGE SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

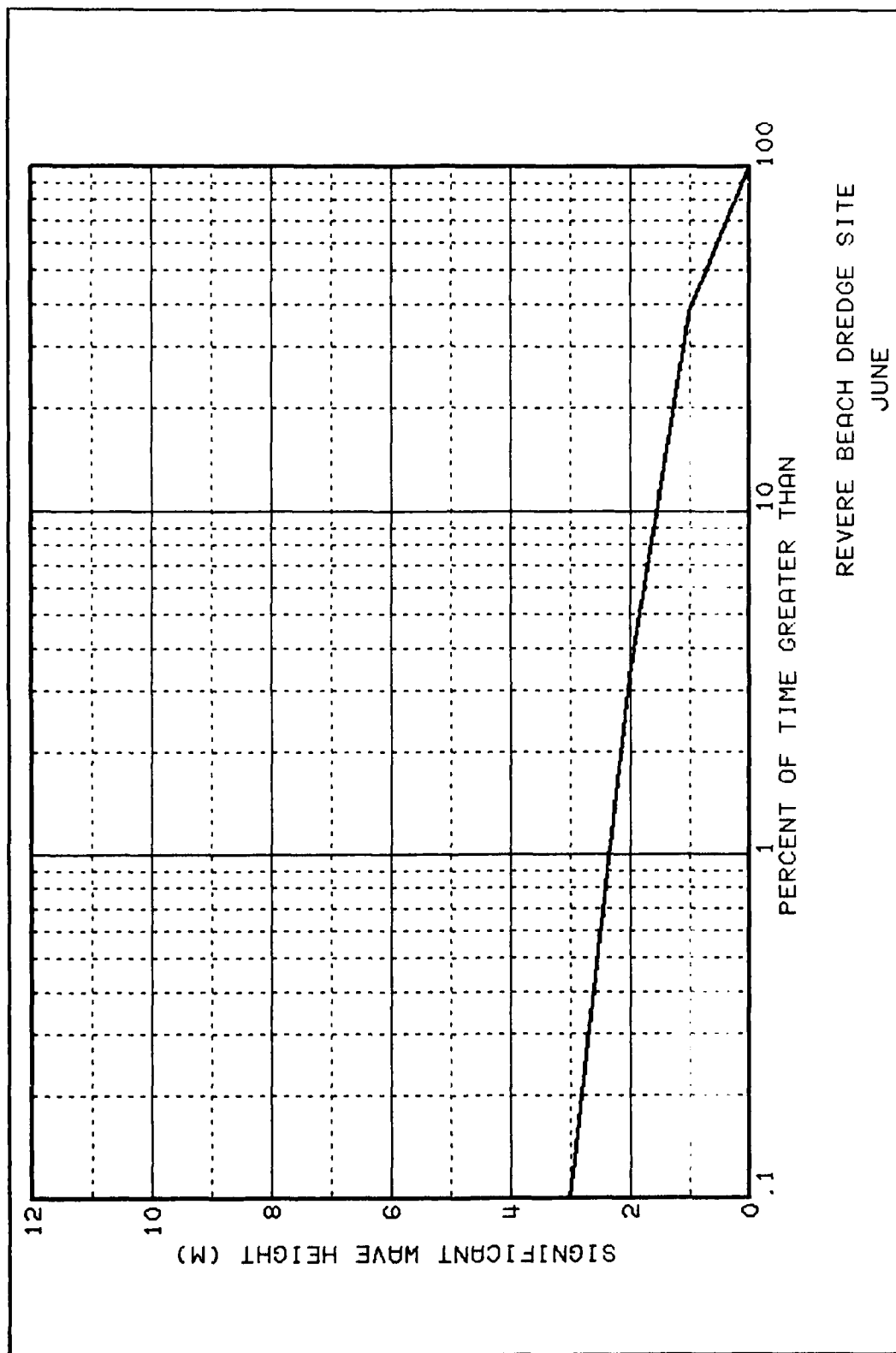
HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	47.28	2.21	2.26	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.82
01-02	30.91	3.12	1.16	0.80	0.47	0.00	0.00	0.00	0.00	0.00	0.00	36.45
02-03	4.30	2.82	0.34	0.89	0.34	0.00	0.00	0.00	0.00	0.00	0.00	8.70
03-04	0.75	0.56	0.11	0.13	0.10	0.14	0.00	0.00	0.00	0.00	0.00	1.78
04-05	0.00	0.61	0.00	0.18	0.00	0.47	0.00	0.00	0.00	0.00	0.00	1.26
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	83.24	9.32	3.86	2.06	0.91	0.60	0.00	0.00	0.00	0.00	0.00	



REVERE BEACH DREDGE SITE
MAY

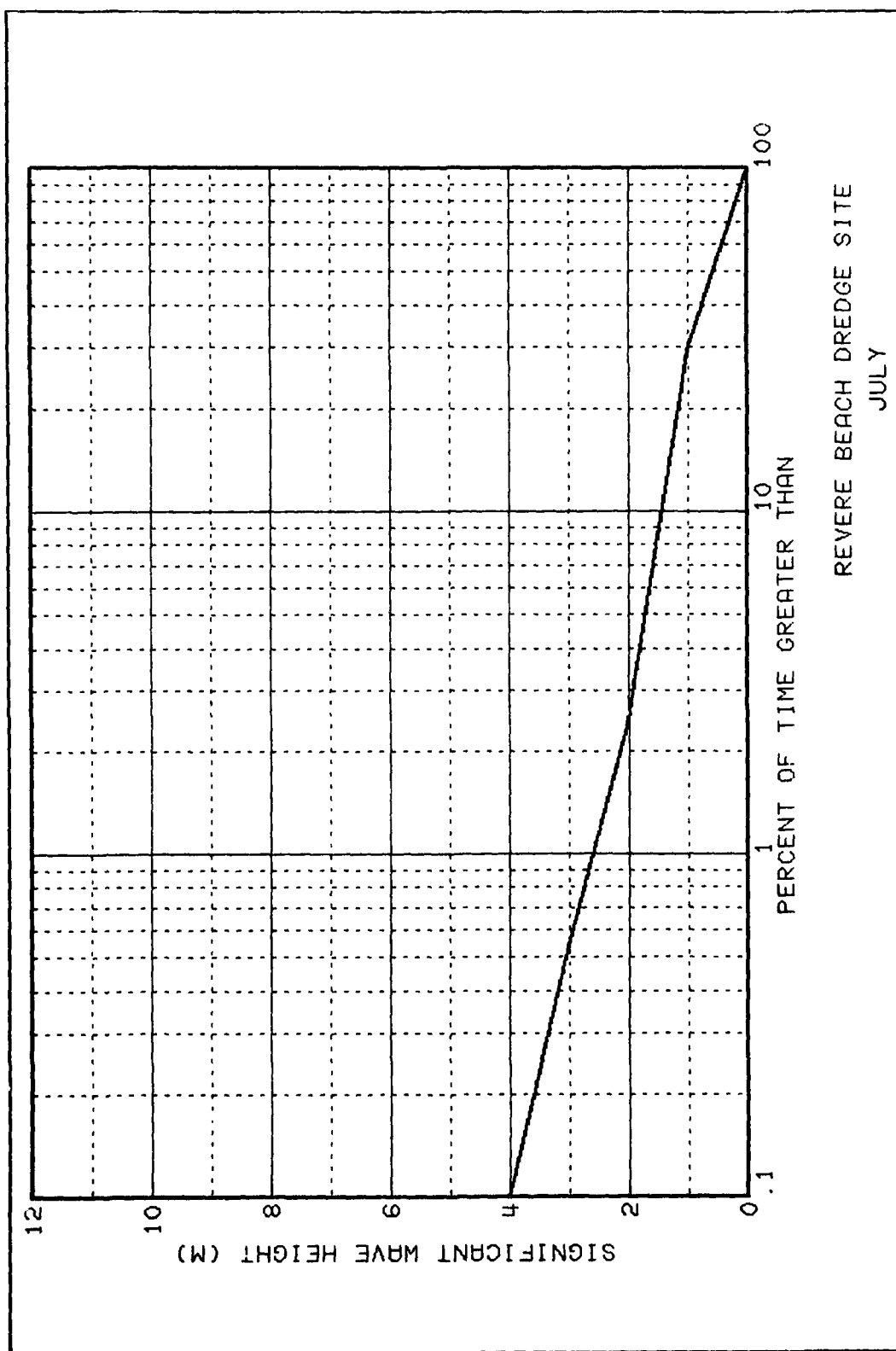
REVERE BEACH DREDGE SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	58.94	2.00	1.03	0.08	0.00	0.00	0.00	0.00	0.00	0.00	62.06
01-02	28.88	3.76	1.62	0.38	0.00	0.00	0.00	0.00	0.00	0.00	34.64
02-03	0.52	1.78	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.30
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	88.35	7.54	3.65	0.46	0.00	0.00	0.00	0.00	0.00	0.00	



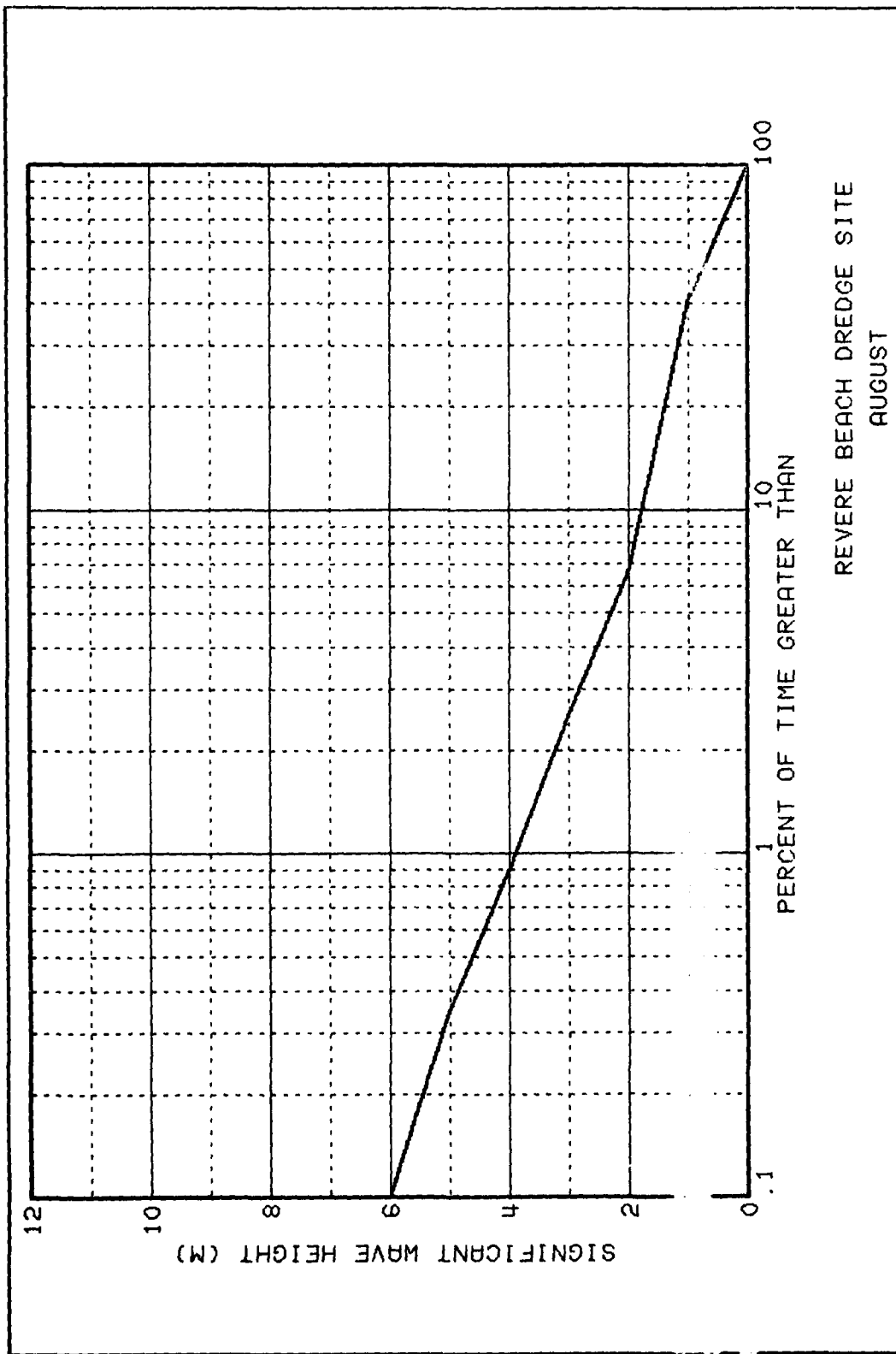
REVERE BEACH DREDGE SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	64.12	4.08	0.72	0.00	0.00	0.61	0.00	0.00	0.00	1.08	70.61
01-02	20.71	4.43	1.66	0.00	0.00	0.00	0.00	0.00	0.00	0.15	26.95
02-03	0.56	0.39	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.90
03-04	0.00	0.00	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	85.39	9.90	3.67	0.00	0.00	0.61	0.00	0.00	0.00	1.23	



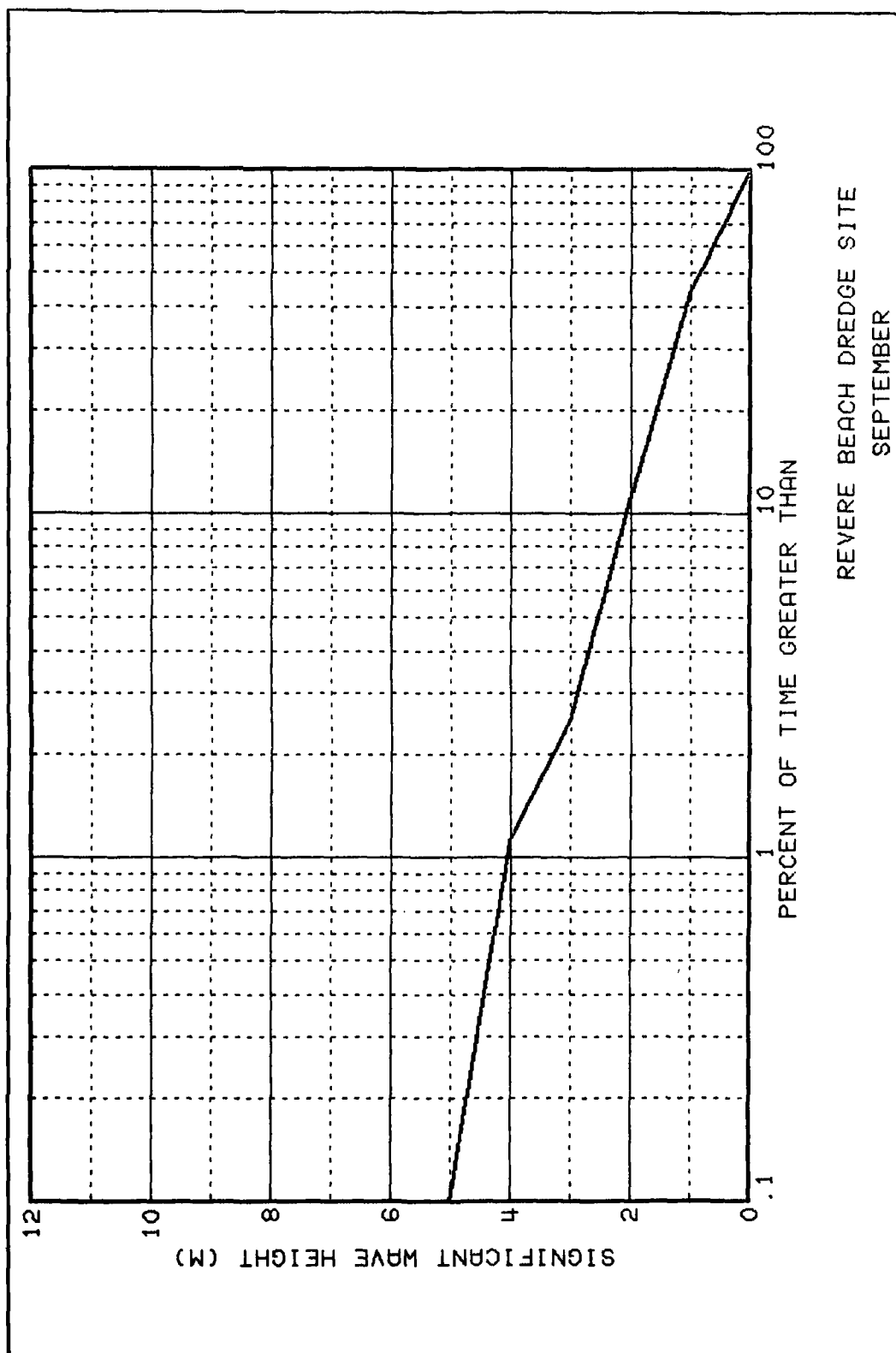
REVERE BEACH DREDGE SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	55.26	2.94	0.80	0.31	0.00	0.00	0.00	0.00	0.35	0.33	59.98
01-02	26.48	6.44	0.42	0.05	0.00	0.00	0.00	0.00	0.01	0.03	33.43
02-03	2.41	0.92	0.55	0.20	0.00	0.00	0.00	0.00	0.00	0.00	4.08
03-04	0.70	0.09	0.51	0.33	0.00	0.00	0.00	0.00	0.00	0.00	1.63
04-05	0.00	0.00	0.33	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.54
05-06	0.00	0.00	0.00	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.35
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	84.85	10.39	2.61	1.45	0.00	0.00	0.00	0.00	0.36	0.36	



REVERE BEACH DREDGE SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER

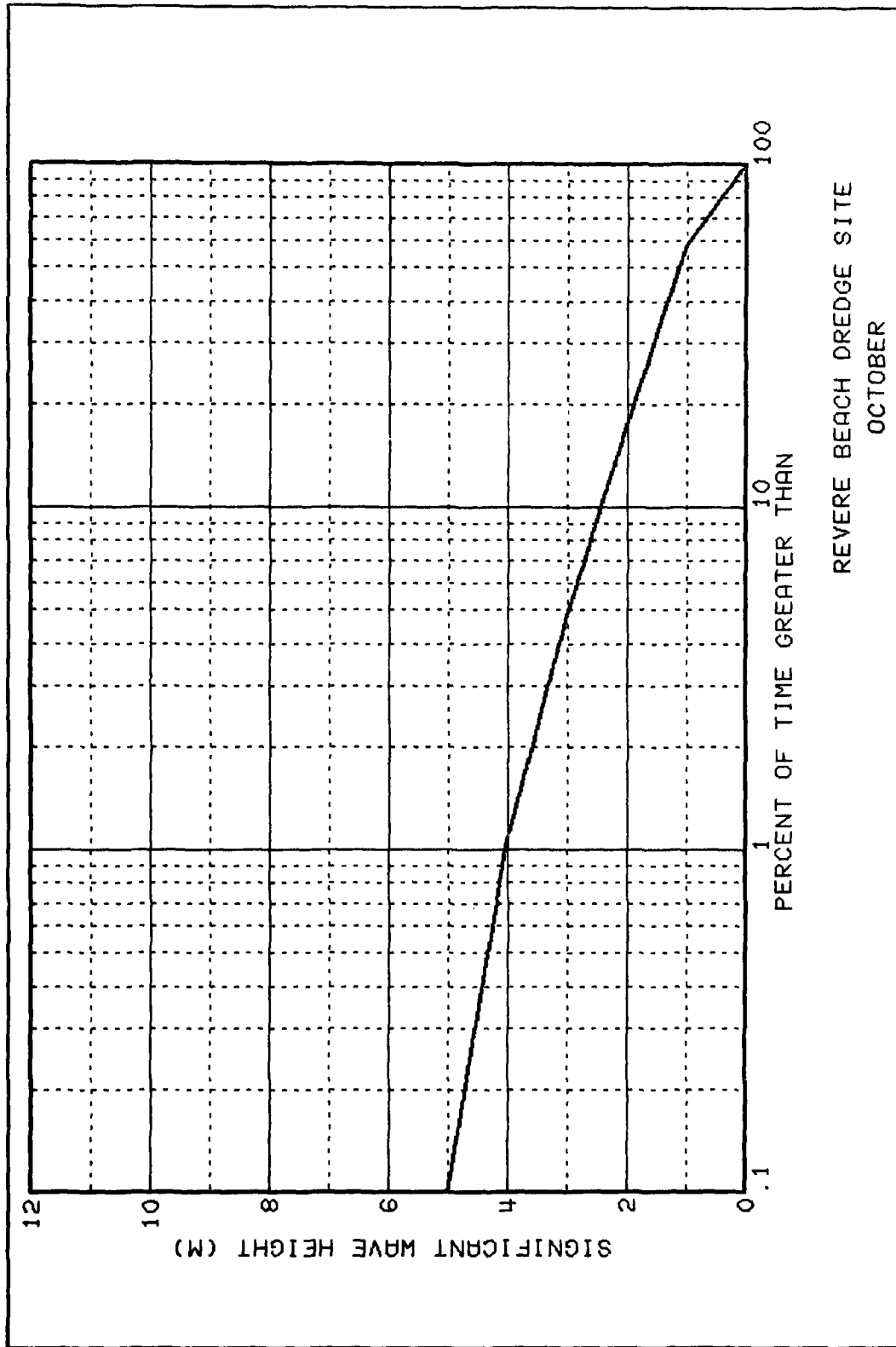
HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	54.19	0.46	1.02	0.00	0.00	0.19	0.00	0.00	0.00	0.39		56.25
01-02	27.66	4.00	0.89	0.00	0.00	0.08	0.00	0.00	0.00	0.19		32.82
02-03	5.45	2.21	0.61	0.00	0.00	0.15	0.00	0.00	0.00	0.04		8.46
03-04	0.00	0.35	0.89	0.00	0.00	0.11	0.00	0.00	0.00	0.00		1.36
04-05	0.20	0.42	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00		1.12
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	87.50	7.44	3.90	0.00	0.00	0.53	0.00	0.00	0.00	0.62		



REVERE BEACH DREDGE SITE
SEPTEMBER

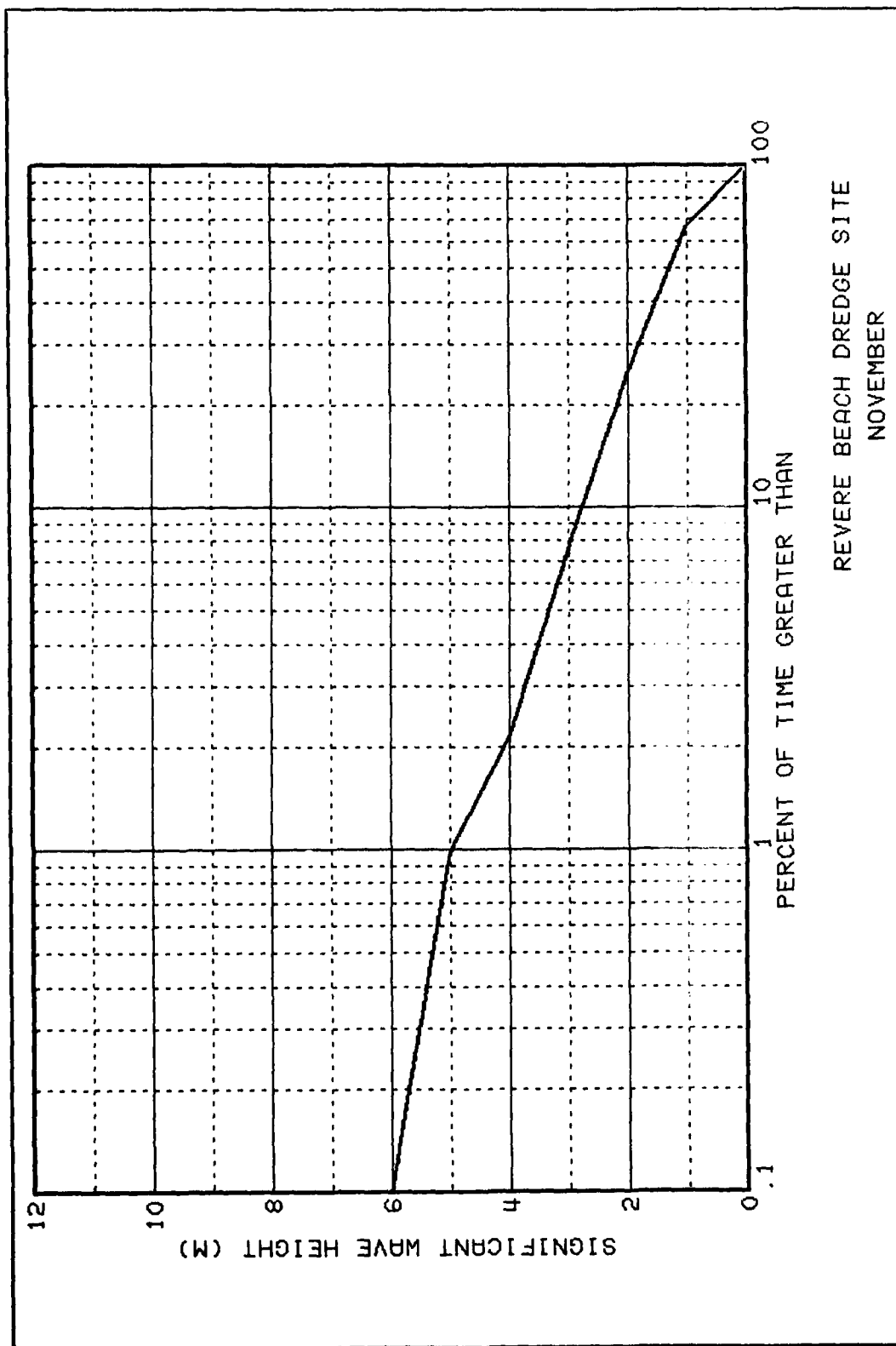
REVERE BEACH DREDGE SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	5-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	40.75	0.25	0.32	0.28	0.06	0.00	0.00	0.00	0.00	0.00	41.66
01-02	34.51	3.70	2.15	0.20	0.36	0.14	0.00	0.00	0.00	0.00	41.05
02-03	7.19	3.03	1.70	0.00	0.30	0.25	0.00	0.00	0.00	0.00	12.46
03-04	0.57	2.23	0.50	0.26	0.19	0.00	0.00	0.00	0.00	0.00	3.76
04-05	0.00	0.14	0.62	0.20	0.10	0.00	0.00	0.00	0.00	0.00	1.07
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	83.02	9.35	5.30	0.94	1.00	0.38	0.00	0.00	0.00	0.00	



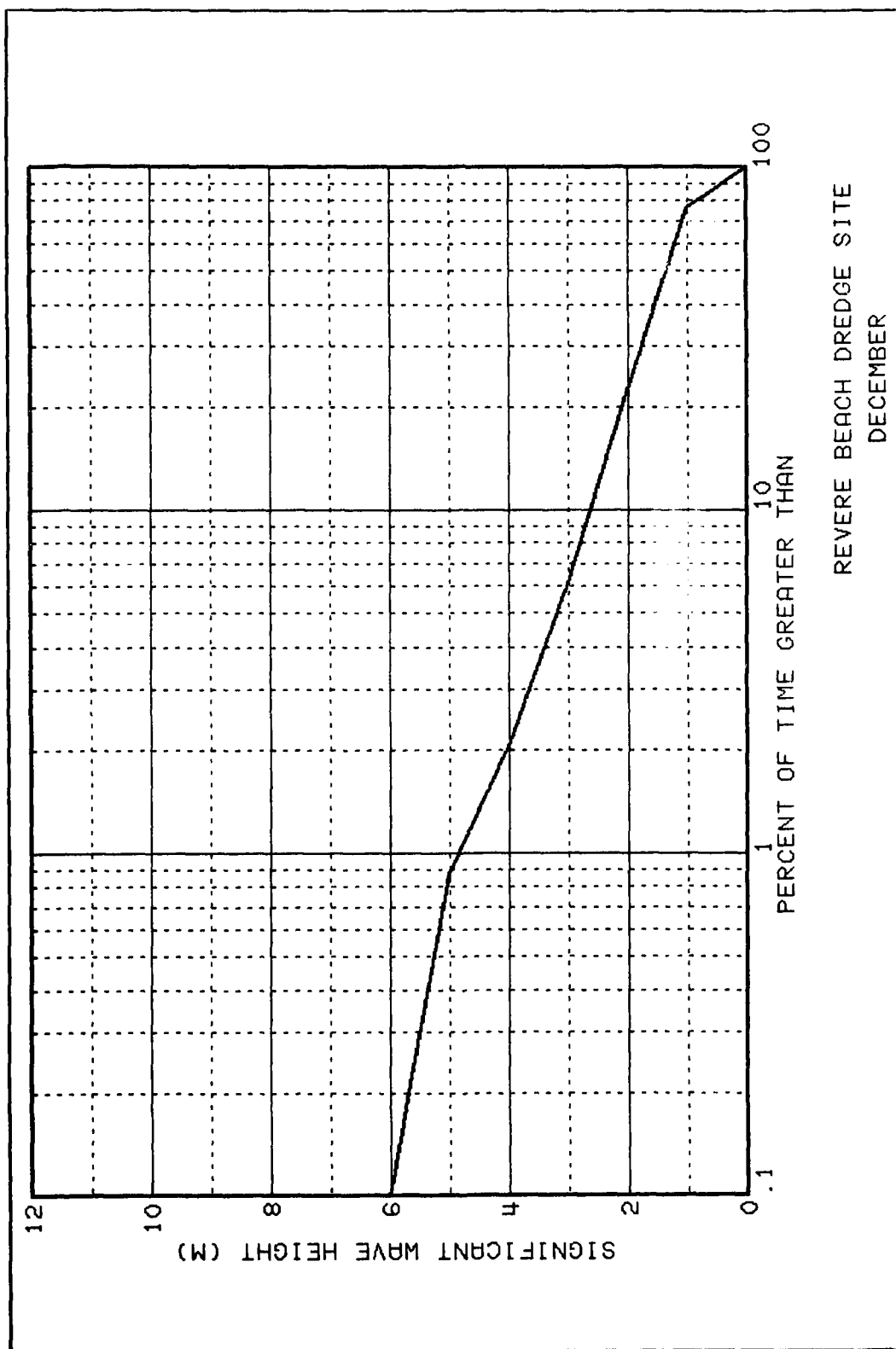
REVERE BEACH DREDGE SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	30.33	1.73	1.21	0.00	0.18	0.09	0.00	0.00	0.00	0.35	33.88
01-02	31.07	7.62	2.25	0.00	0.31	0.24	0.00	0.00	0.00	0.03	41.54
02-03	8.97	4.15	2.82	0.52	0.33	0.26	0.00	0.00	0.00	0.00	17.04
03-04	1.75	1.22	1.46	0.46	0.35	0.18	0.00	0.00	0.00	0.00	5.41
04-05	0.65	0.12	0.26	0.05	0.07	0.00	0.00	0.00	0.00	0.00	1.15
05-06	0.83	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.98
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	73.60	14.98	8.00	1.03	1.24	0.77	0.00	0.00	0.00	0.38	



REVERE BEACH DREDGE SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	22.11	1.31	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.44
01-02	43.74	3.55	0.45	0.00	0.30	0.06	0.00	0.00	0.00	0.00	54.11
02-03	11.20	2.85	1.13	0.00	0.28	0.83	0.00	0.00	0.00	0.00	16.30
03-04	0.46	1.74	0.96	0.00	0.08	0.85	0.00	0.00	0.00	0.00	4.08
04-05	0.45	0.54	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19
05-06	0.00	0.05	0.59	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.87
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	83.96	10.04	3.35	0.00	0.66	1.97	0.00	0.00	0.00	0.00	



REVERE BEACH DREDGE SITE
 CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 30

HEIGHT (M)	PERIOD (SEC)										TOTPL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	12.76	0.43	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.38
01-02	10.12	1.17	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.59
02-03	1.96	0.73	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.15
03-04	0.25	0.19	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60
04-05	0.02	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12
05-06	0.02	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	25.13	2.64	1.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

REVERE BEACH DREDGE SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 60

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	13.73	0.47	0.12	0.02	0.02	0.05	0.00	0.00	0.02	0.14		14.58
01-02	11.61	1.98	0.45	0.02	0.12	0.07	0.00	0.00	0.00	0.03		14.29
02-03	2.29	1.21	0.57	0.07	0.12	0.20	0.00	0.00	0.00	0.00		4.46
03-04	0.38	0.47	0.46	0.10	0.12	0.16	0.00	0.00	0.00	0.00		1.67
04-05	0.04	0.13	0.21	0.08	0.03	0.05	0.00	0.00	0.00	0.00		0.54
05-06	0.04	0.00	0.15	0.13	0.00	0.05	0.00	0.00	0.00	0.00		0.37
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	23.10	4.26	1.96	0.42	0.40	0.58	0.00	0.00	0.02	0.18		

REVERE BEACH DREDGE SITE
CUMULATIVE SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 90

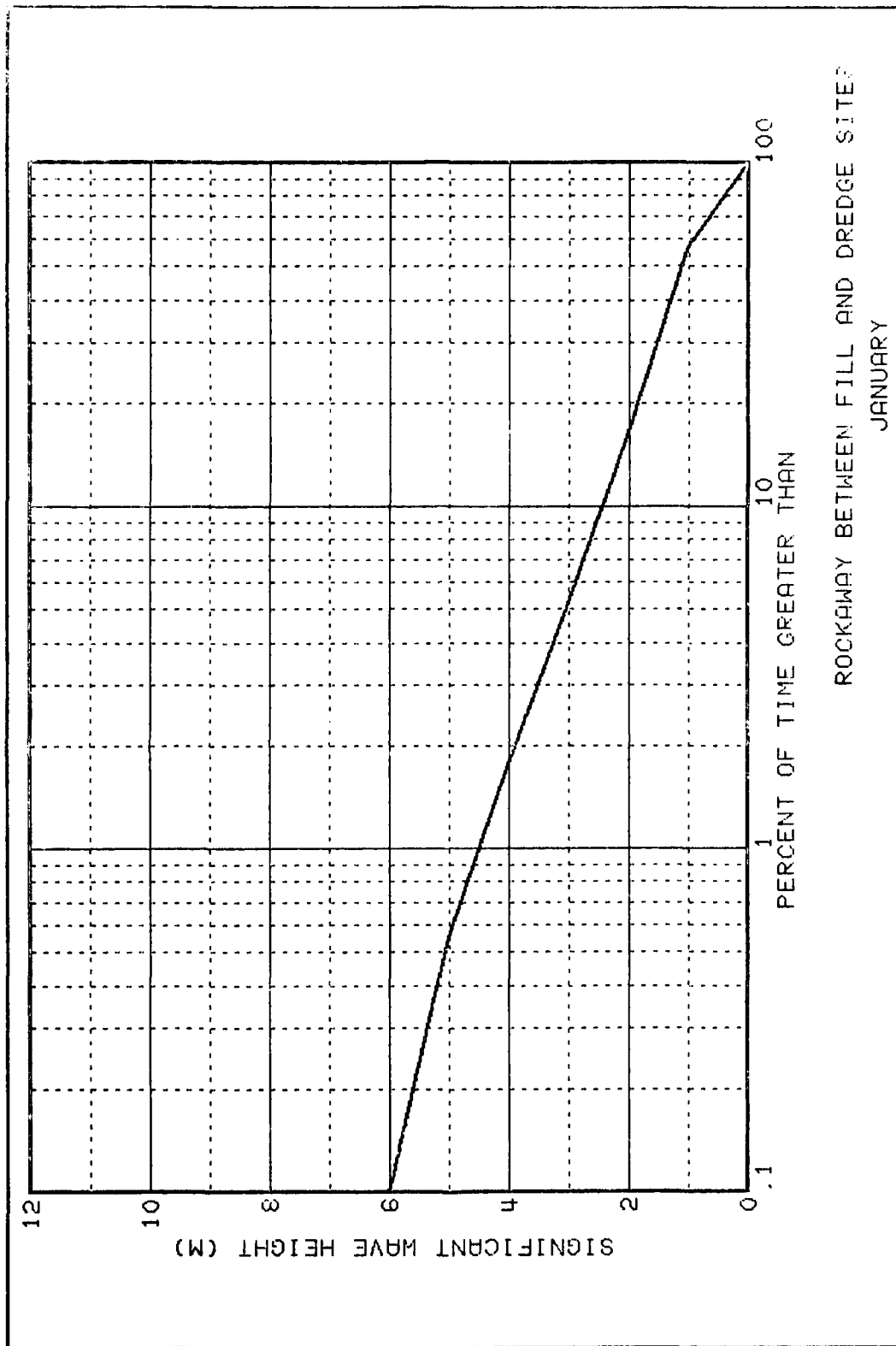
HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	12.81	0.84	0.65	0.07	0.04	0.00	0.00	0.00	0.00	0.00		14.41
01-02	12.25	2.03	0.75	0.17	0.17	0.00	0.00	0.00	0.00	0.00		15.37
02-03	1.74	1.20	0.33	0.15	0.08	0.00	0.00	0.00	0.00	0.00		3.48
03-04	0.33	0.49	0.23	0.09	0.07	0.00	0.00	0.00	0.00	0.00		1.21
04-05	0.17	0.12	0.13	0.05	0.02	0.00	0.00	0.00	0.00	0.00		0.48
05-06	0.10	0.01	0.02	0.00	0.04	0.00	0.00	0.00	0.00	0.00		0.18
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	27.41	4.69	2.11	0.52	0.41	0.00	0.00	0.00	0.00	0.00		0.00

APPENDIX C: AVERAGE WAVE CLIMATE AT ROCKAWAY BEACH, N. Y.

1. Appendix C contains the following information for the Rockaway Beach, N. Y., project site:
 - a. Tabulations of monthly percent occurrence of wave-height/period combinations.
 - b. Tabulations of annual percent occurrence by azimuth direction of wave-height/period combinations.
 - c. Plots of monthly significant wave-height occurrence in terms of the total percent time per month that these heights are exceeded.

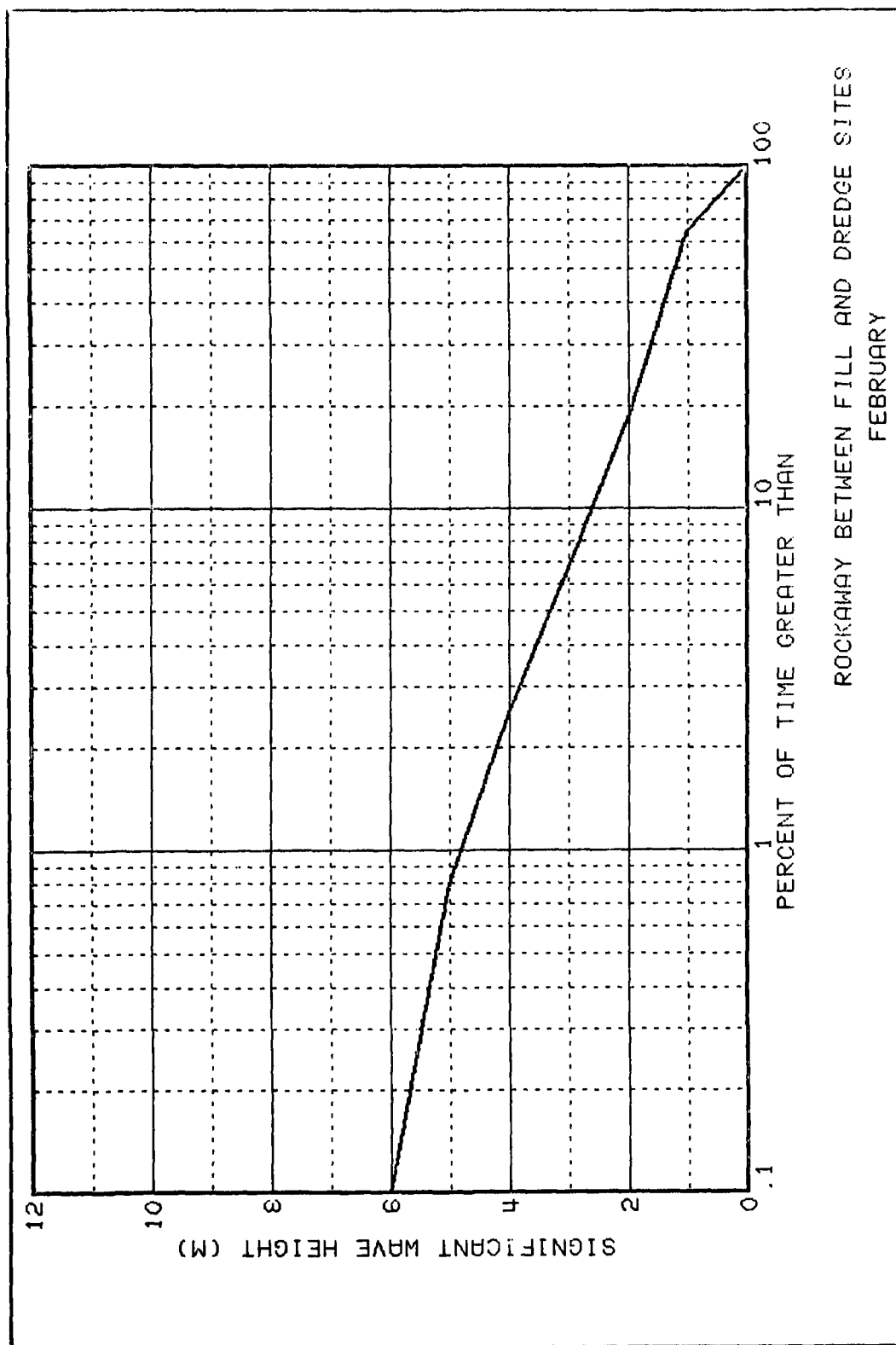
ROCKAWAY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JANUARY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	37.60	3.05	0.31	0.44	0.42	0.00	0.00	0.00	0.31	0.25	42.99
01-02	28.81	6.16	4.01	0.77	0.32	0.22	0.00	0.00	0.19	0.08	40.57
02-03	2.19	5.11	2.49	0.59	0.63	0.03	0.00	0.00	0.00	0.17	11.25
03-04	0.25	1.85	0.82	0.19	0.32	0.00	0.00	0.00	0.00	0.00	3.43
04-05	0.48	0.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.21
05-06	0.00	0.30	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.55
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	69.33	17.21	8.23	1.90	1.99	0.25	0.00	0.00	0.50	0.50	



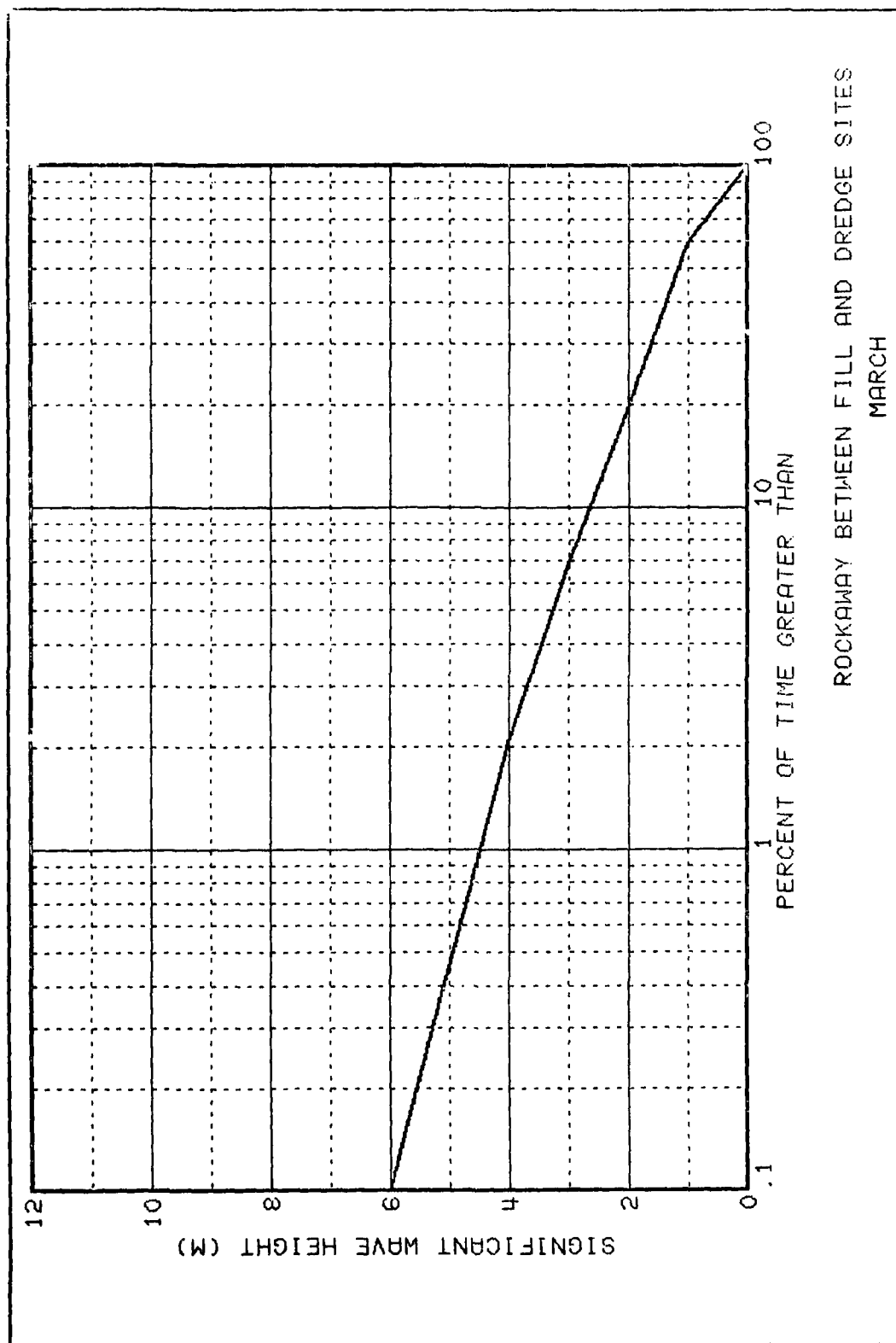
ROCKAWAY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	29.56	2.82	1.18	0.46	0.86	0.16	0.01	0.00	0.34	0.16	35.54
01-02	30.20	10.16	3.32	0.80	1.12	0.10	0.14	0.00	0.28	0.00	46.12
02-03	3.32	5.86	1.01	0.79	0.60	0.05	0.00	0.00	0.01	0.00	11.65
03-04	1.23	2.13	0.39	0.17	0.16	0.00	0.00	0.00	0.11	0.00	4.18
04-05	0.23	0.83	0.31	0.17	0.06	0.03	0.00	0.00	0.04	0.00	1.71
05-06	0.00	0.26	0.16	0.10	0.16	0.13	0.00	0.00	0.00	0.00	0.79
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	64.60	22.05	6.37	2.48	2.95	0.47	0.16	0.00	0.70	0.16	



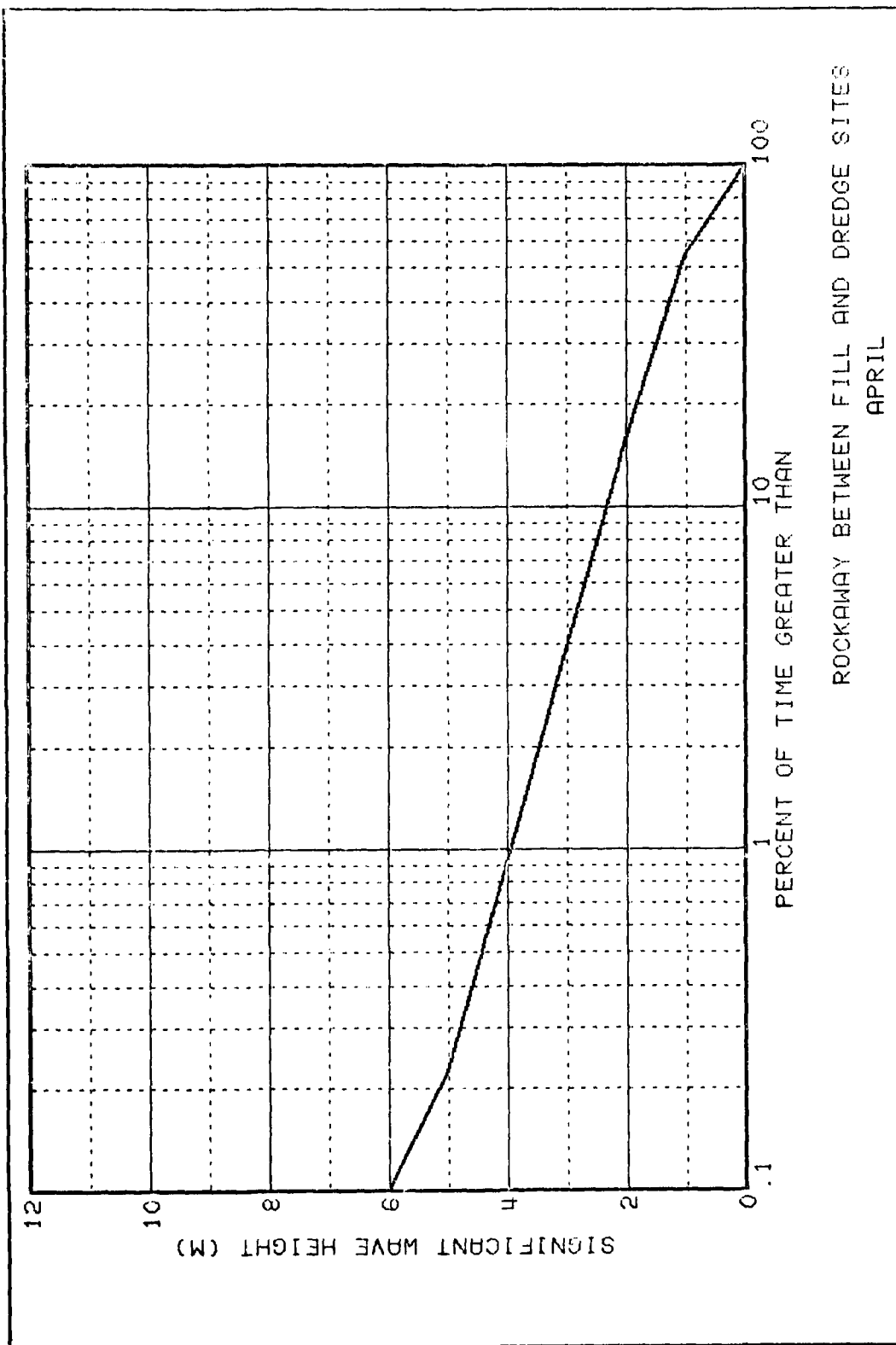
ROCKAWAY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MARCH

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	34.65	2.85	1.06	0.44	0.58	0.48	0.00	0.00	0.13	0.52	40.70
01-02	27.27	7.76	3.54	0.87	0.44	0.04	0.00	0.00	0.00	0.04	39.96
02-03	4.31	4.84	1.60	1.30	0.21	0.13	0.00	0.00	0.00	0.09	12.48
03-04	0.86	2.61	0.96	0.16	0.15	0.04	0.00	0.00	0.00	0.00	4.79
04-05	0.00	1.21	0.13	0.14	0.05	0.09	0.00	0.00	0.00	0.00	1.61
05-06	0.00	0.24	0.00	0.08	0.00	0.00	0.13	0.00	0.00	0.00	0.45
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	67.10	19.51	7.23	2.80	1.43	0.70	0.13	0.00	0.13	0.65	



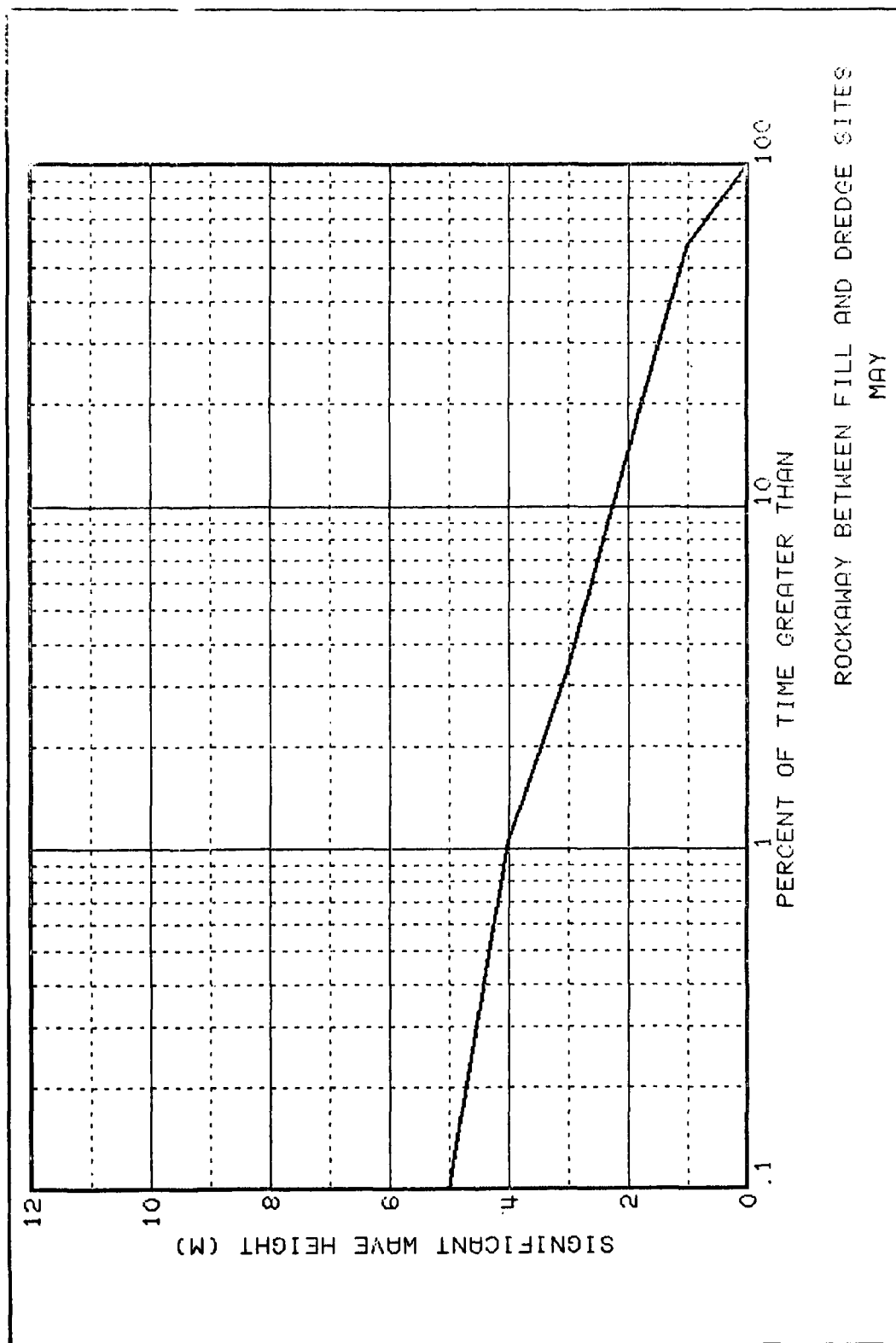
ROCKAWAY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR APRIL

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	37.93	3.86	1.55	0.43	0.70	0.18	0.09	0.09	0.00	0.27	45.10
01-02	26.63	7.31	3.30	1.15	0.37	0.20	0.05	0.08	0.09	0.00	39.19
02-03	3.95	4.51	2.01	0.95	0.19	0.06	0.04	0.00	0.09	0.00	11.80
03-04	0.49	2.11	0.34	0.01	0.05	0.00	0.00	0.00	0.00	0.00	3.00
04-05	0.00	0.64	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.60
05-06	0.00	0.19	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.23
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	69.01	18.61	7.20	2.55	1.40	0.44	0.16	0.16	0.18	0.27	



ROCKAWAY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

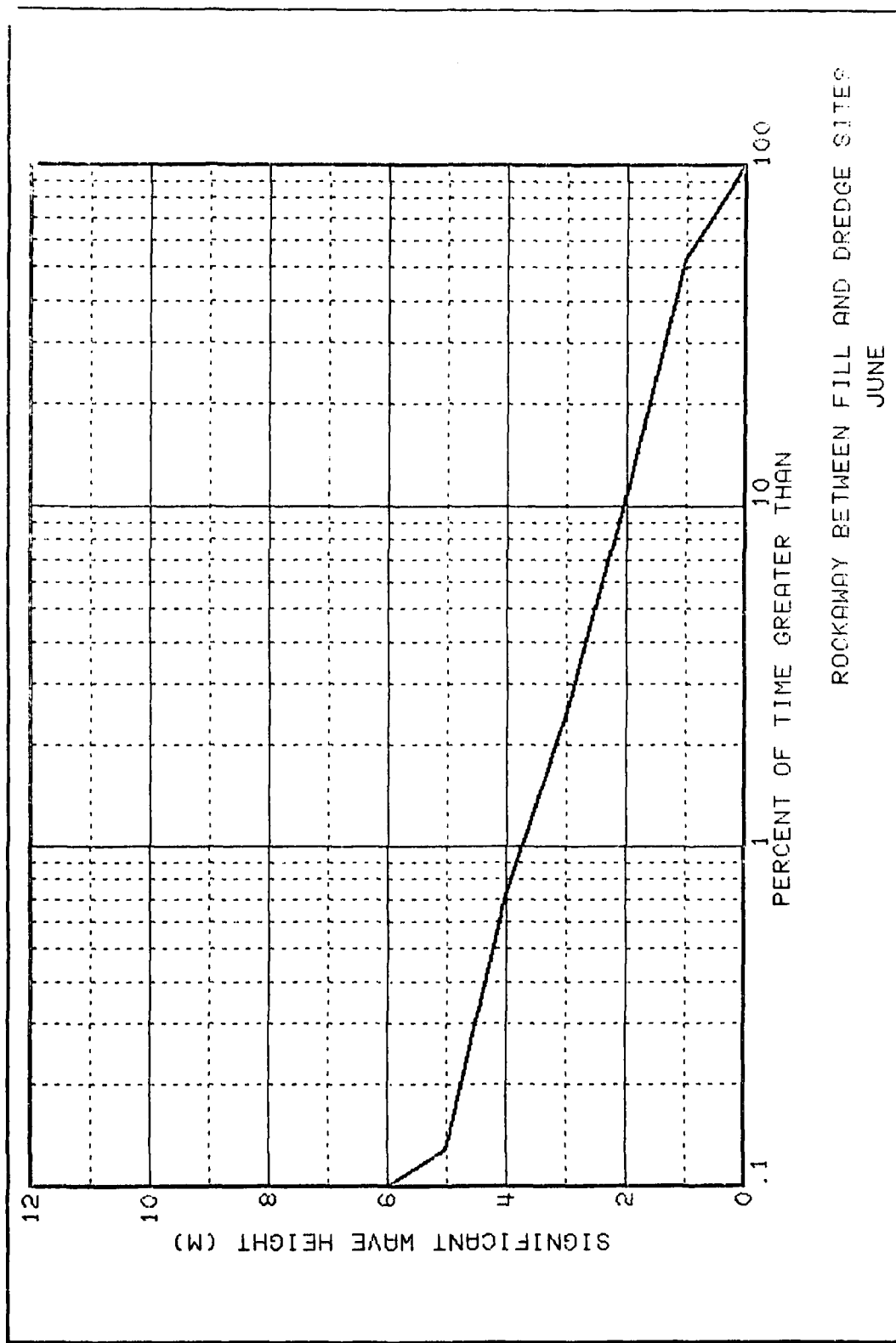
HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	33.44	3.46	2.72	0.52	0.17	0.05	0.00	0.00	0.17	0.81	41.35
01-02	32.29	7.66	3.15	0.80	0.13	0.20	0.00	0.00	0.03	0.07	44.32
02-03	4.21	4.75	1.53	0.23	0.00	0.06	0.00	0.00	0.00	0.13	10.91
03-04	0.01	1.82	0.28	0.17	0.06	0.00	0.01	0.00	0.00	0.00	2.36
04-05	0.03	0.76	0.00	0.00	0.04	0.00	0.08	0.00	0.00	0.00	0.97
05-06	0.00	0.07	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.08
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	70.04	18.52	7.63	1.72	0.40	0.30	0.10	0.00	0.20	1.01	



ROCKAWAY BETWEEN FILL AND DREDGE SITES
MAY

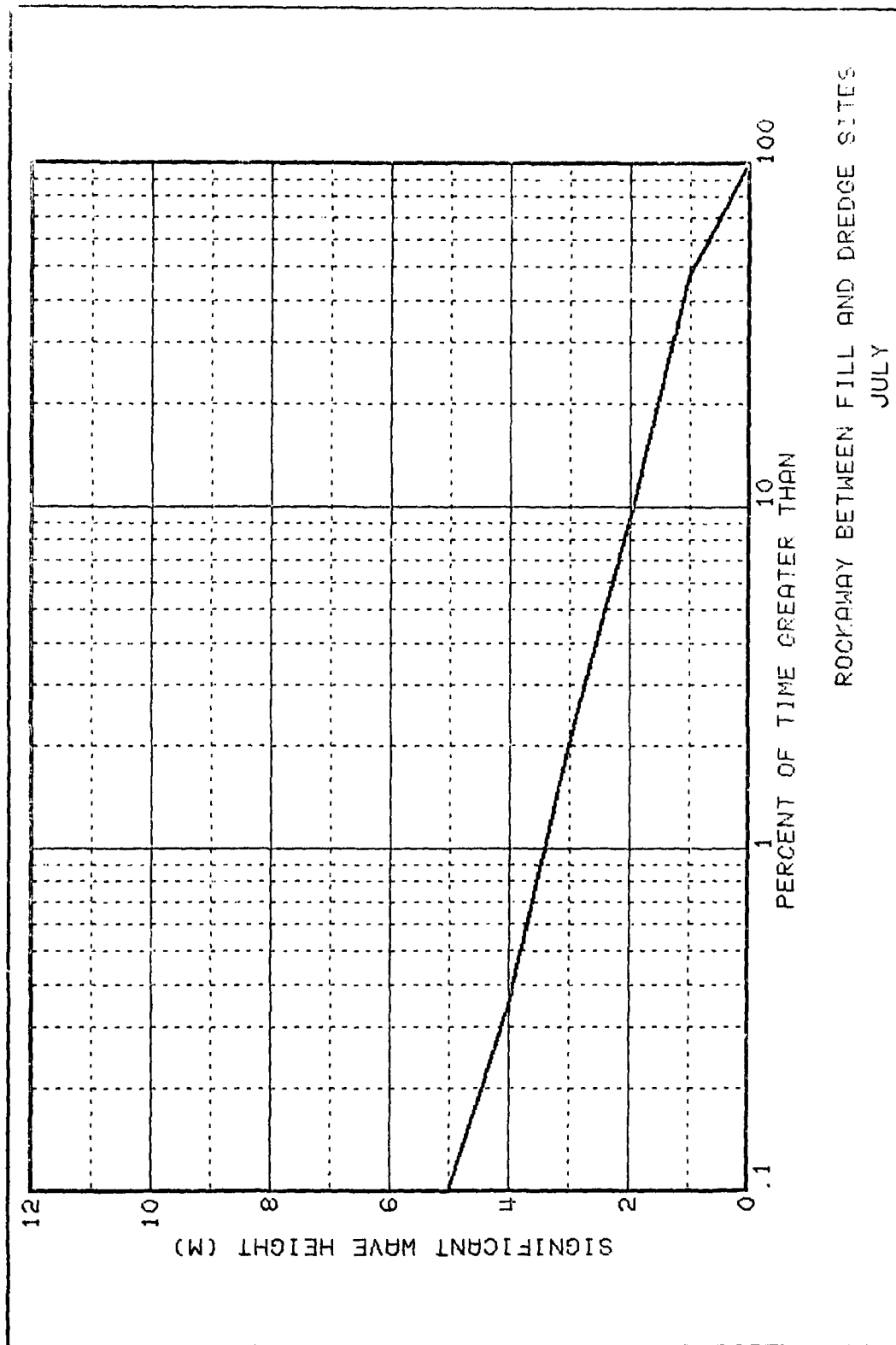
ROCKAWAY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	39.98	3.13	2.06	0.72	0.21	0.23	0.10	0.00	0.57	0.47		47.53
01-02	29.98	8.25	2.50	0.71	0.29	0.11	0.00	0.00	0.03	0.10		41.98
02-03	2.15	4.85	0.44	0.18	0.22	0.10	0.00	0.00	0.00	0.13		8.06
03-04	0.23	1.18	0.00	0.12	0.08	0.03	0.00	0.00	0.00	0.00		1.72
04-05	0.00	0.39	0.00	0.07	0.05	0.08	0.00	0.00	0.00	0.00		0.59
05-06	0.00	0.00	0.00	0.00	0.05	0.03	0.00	0.00	0.00	0.00		0.13
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	72.40	17.30	5.00	1.80	0.90	0.70	0.10	0.00	0.60	0.70		



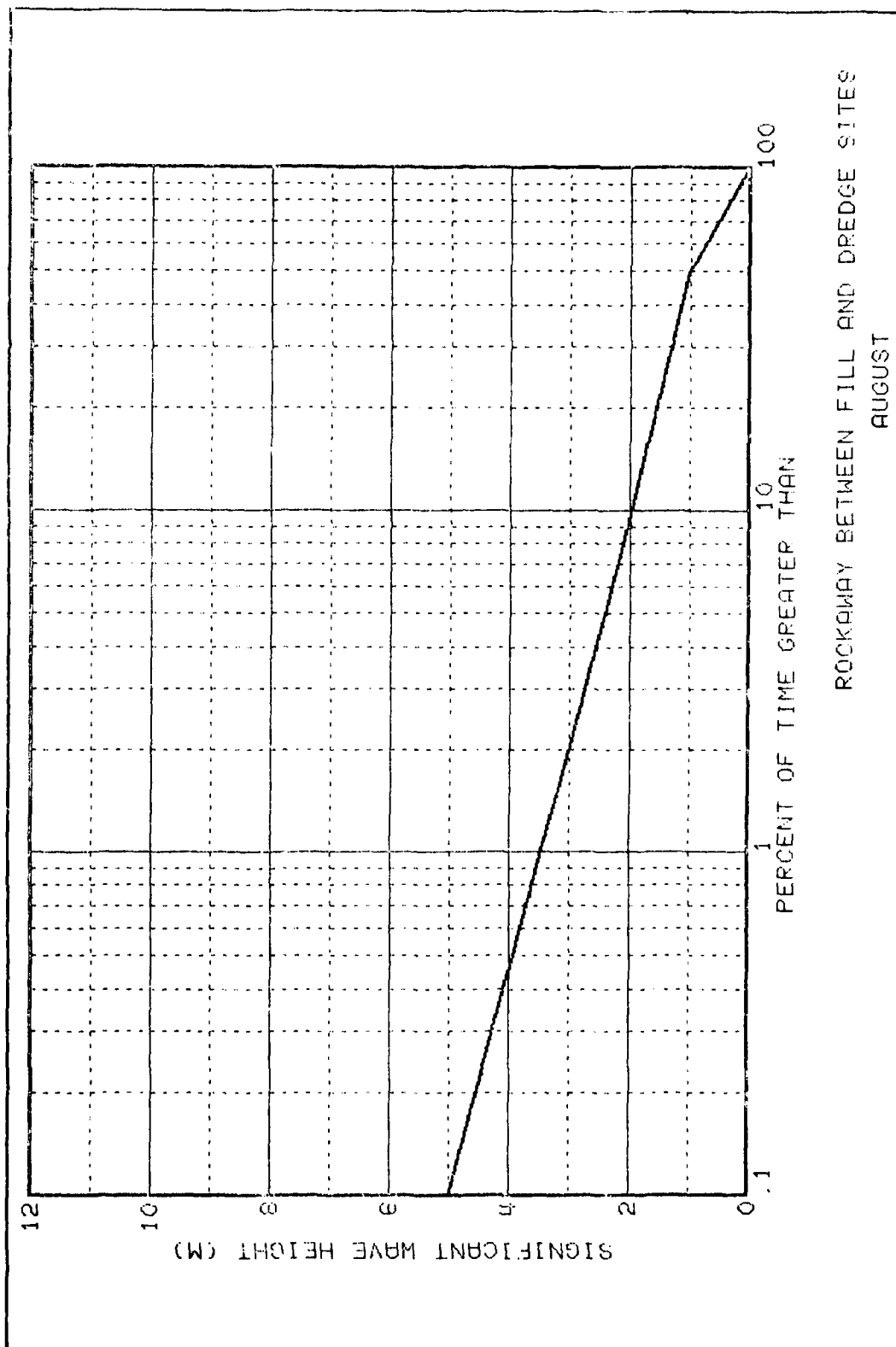
ROCKAWAY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	45.09	2.83	2.42	0.61	0.03	0.22	0.02	0.00	0.62	0.85	52.68
01-02	28.06	6.82	2.40	0.63	0.08	0.00	0.09	0.00	0.03	0.14	38.25
02-03	1.59	4.76	0.55	0.16	0.00	0.00	0.00	0.00	0.00	0.00	7.06
03-04	0.21	1.33	0.11	0.02	0.00	0.00	0.00	0.00	0.00	0.00	1.66
04-05	0.00	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	74.94	16.08	5.48	1.42	0.11	0.22	0.11	0.00	0.66	0.93	



ROCKAWAY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

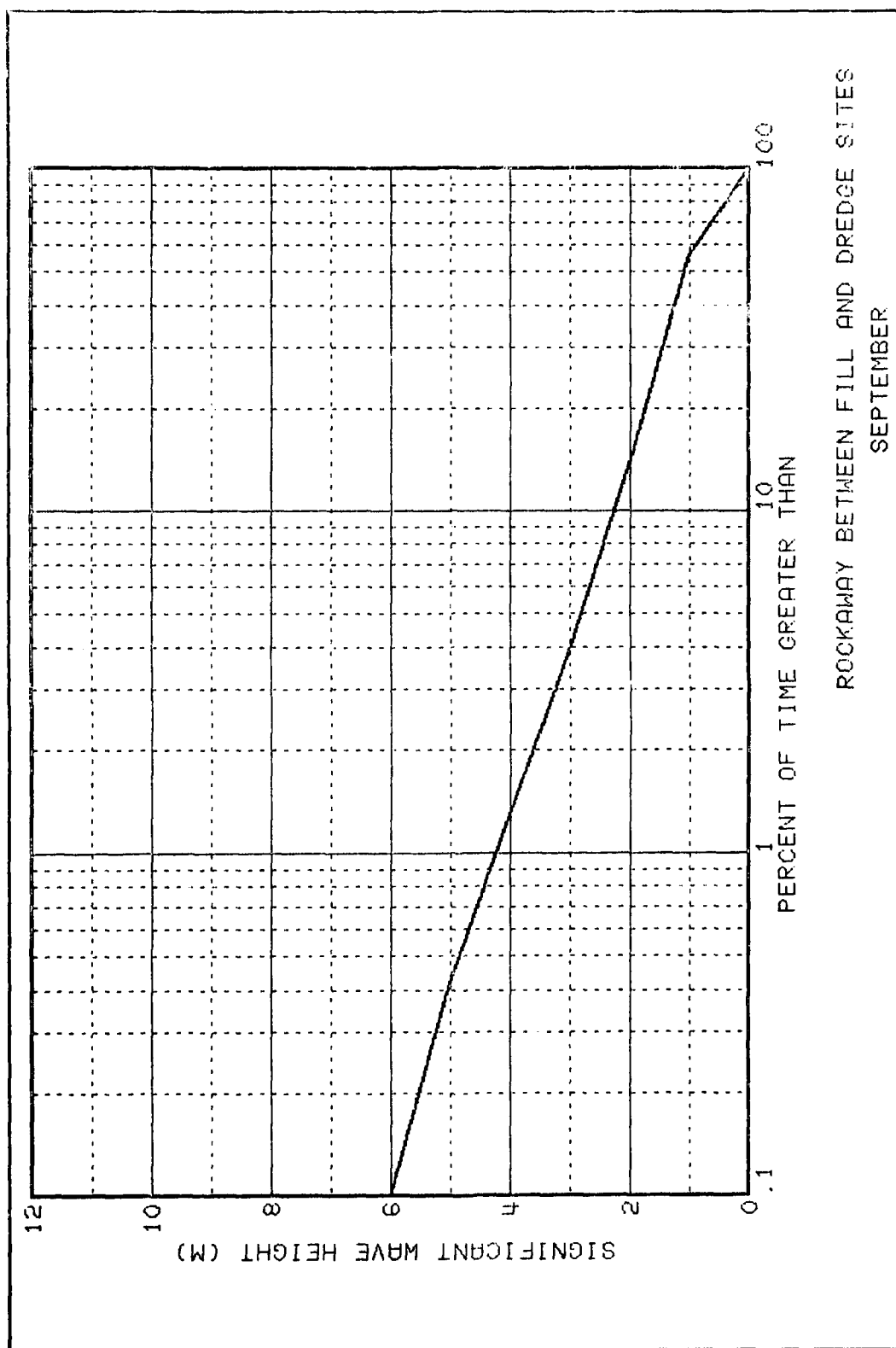
HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	41.50	4.19	1.65	1.28	0.49	0.35	0.12	0.00	0.21	0.45	50.23
01-02	28.71	8.04	2.46	0.52	0.42	0.21	0.00	0.00	0.04	0.04	40.44
02-03	1.07	5.14	0.64	0.16	0.25	0.05	0.05	0.00	0.00	0.00	7.37
03-04	0.12	1.26	0.02	0.00	0.07	0.00	0.07	0.00	0.00	0.00	1.53
04-05	0.00	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	71.10	19.07	4.77	1.86	1.22	0.61	0.25	0.00	0.25	0.49	



ROCKAWAY BETWEEN FILL AND DREDGE SITES
AUGUST

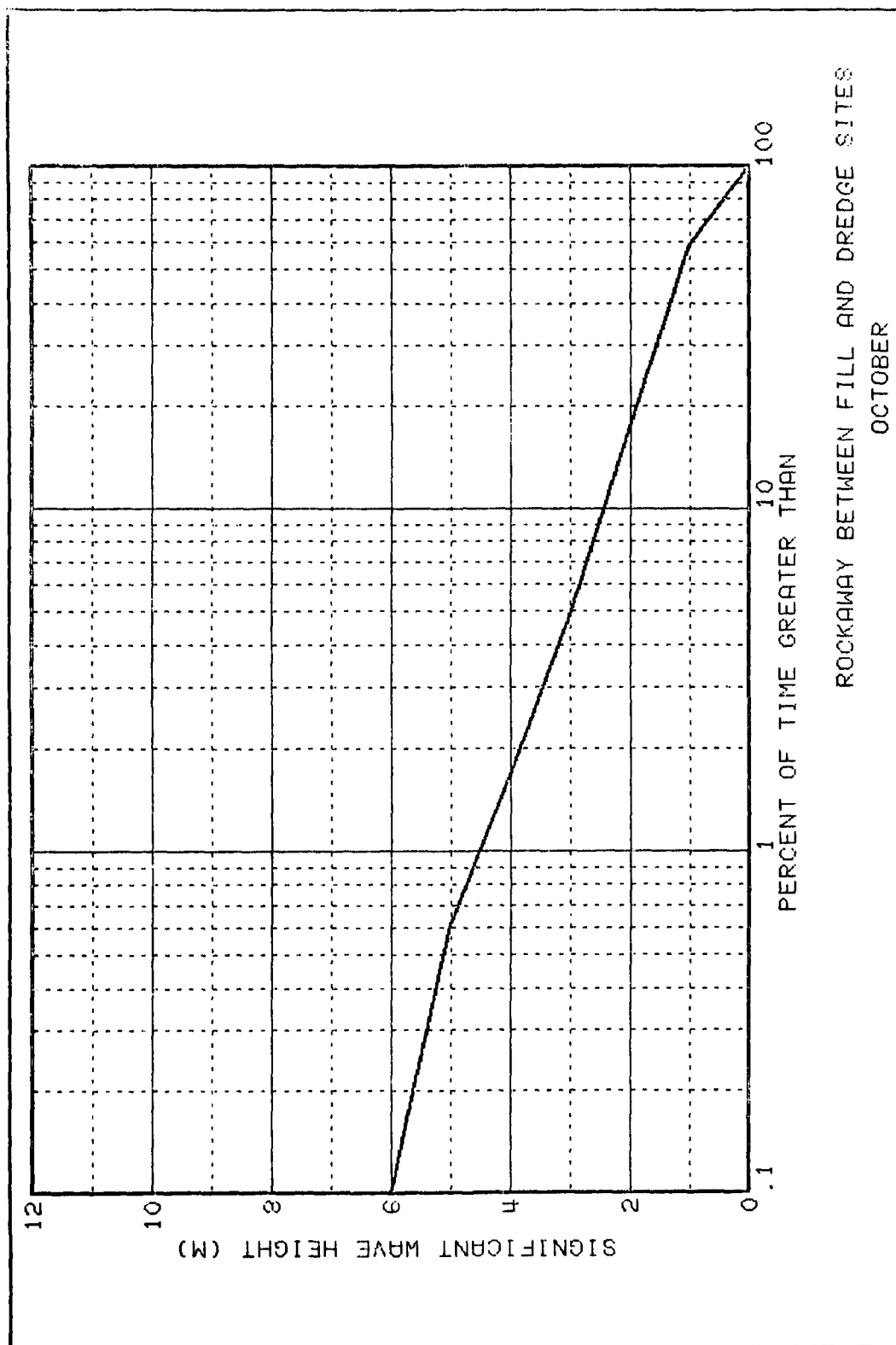
ROCKAWAY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	TOTAL
00-01	37.77	2.47	1.25	0.89	1.06	0.16	0.13	0.00	0.13	0.40	44.26
01-02	30.77	7.16	2.41	0.61	0.90	0.11	0.00	0.00	0.00	0.00	41.95
02-03	2.69	4.62	1.57	0.68	0.29	0.00	0.00	0.02	0.00	0.00	9.89
03-04	0.12	1.58	0.34	0.42	0.00	0.04	0.00	0.10	0.00	0.00	2.60
04-05	0.00	0.35	0.00	0.30	0.07	0.09	0.00	0.01	0.06	0.00	0.88
05-06	0.00	0.27	0.00	0.02	0.06	0.00	0.00	0.00	0.07	0.00	0.42
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	71.35	16.45	5.57	2.02	2.30	0.40	0.13	0.13	0.27	0.40	



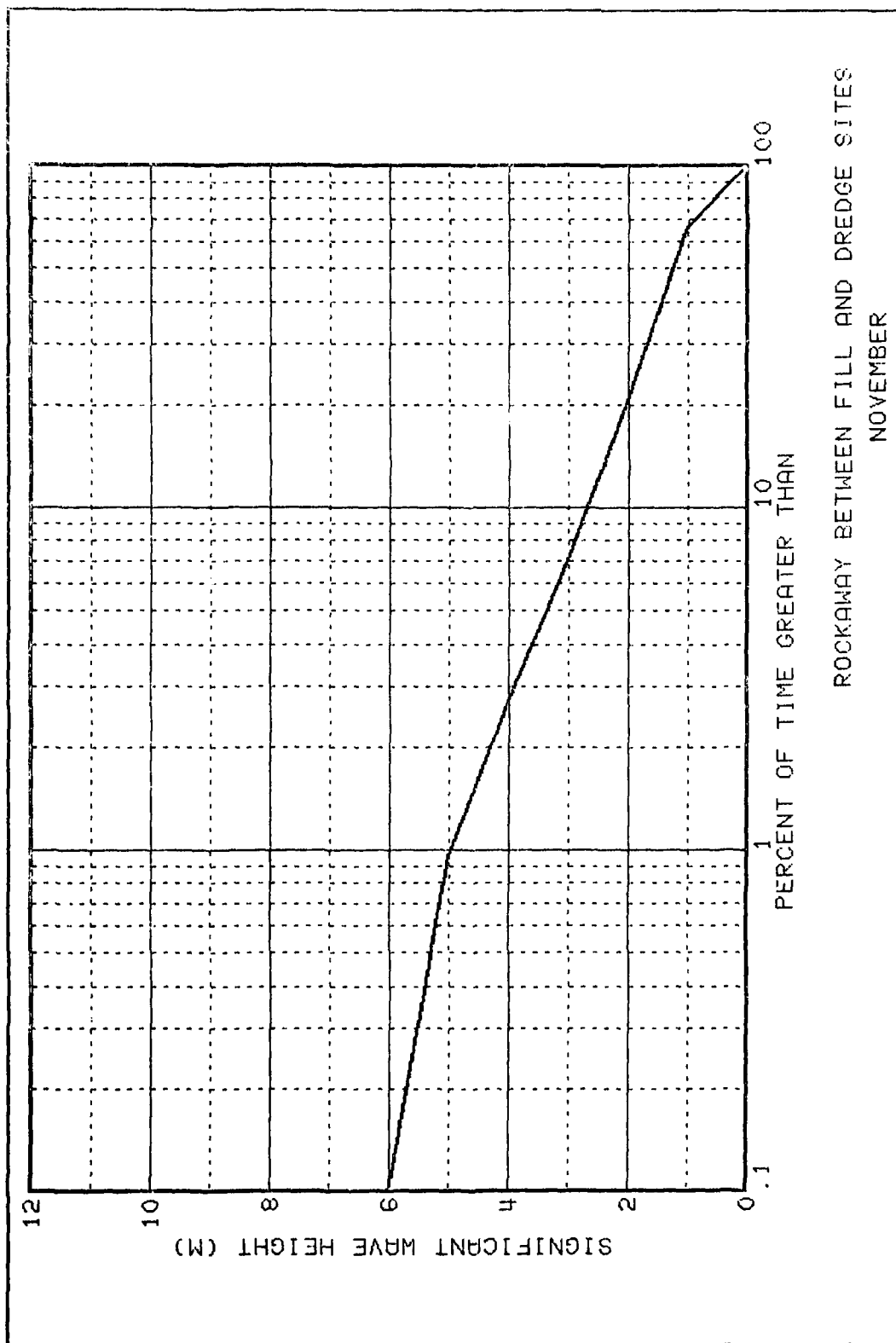
ROCKAWAY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	34.45	3.76	1.61	0.18	0.26	0.13	0.00	0.26	0.43	0.23	41.33
01-02	28.85	7.92	3.77	0.33	0.18	0.00	0.00	0.00	0.10	0.17	41.31
02-03	4.62	5.30	1.96	0.20	0.22	0.20	0.00	0.00	0.00	0.00	12.50
03-04	0.25	1.98	0.62	0.29	0.00	0.07	0.00	0.00	0.00	0.00	3.20
04-05	0.00	0.85	0.13	0.07	0.00	0.00	0.00	0.00	0.00	0.00	1.05
05-06	0.00	0.48	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.61
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	63.17	20.23	8.03	1.06	0.66	0.40	0.13	0.26	0.53	0.40	



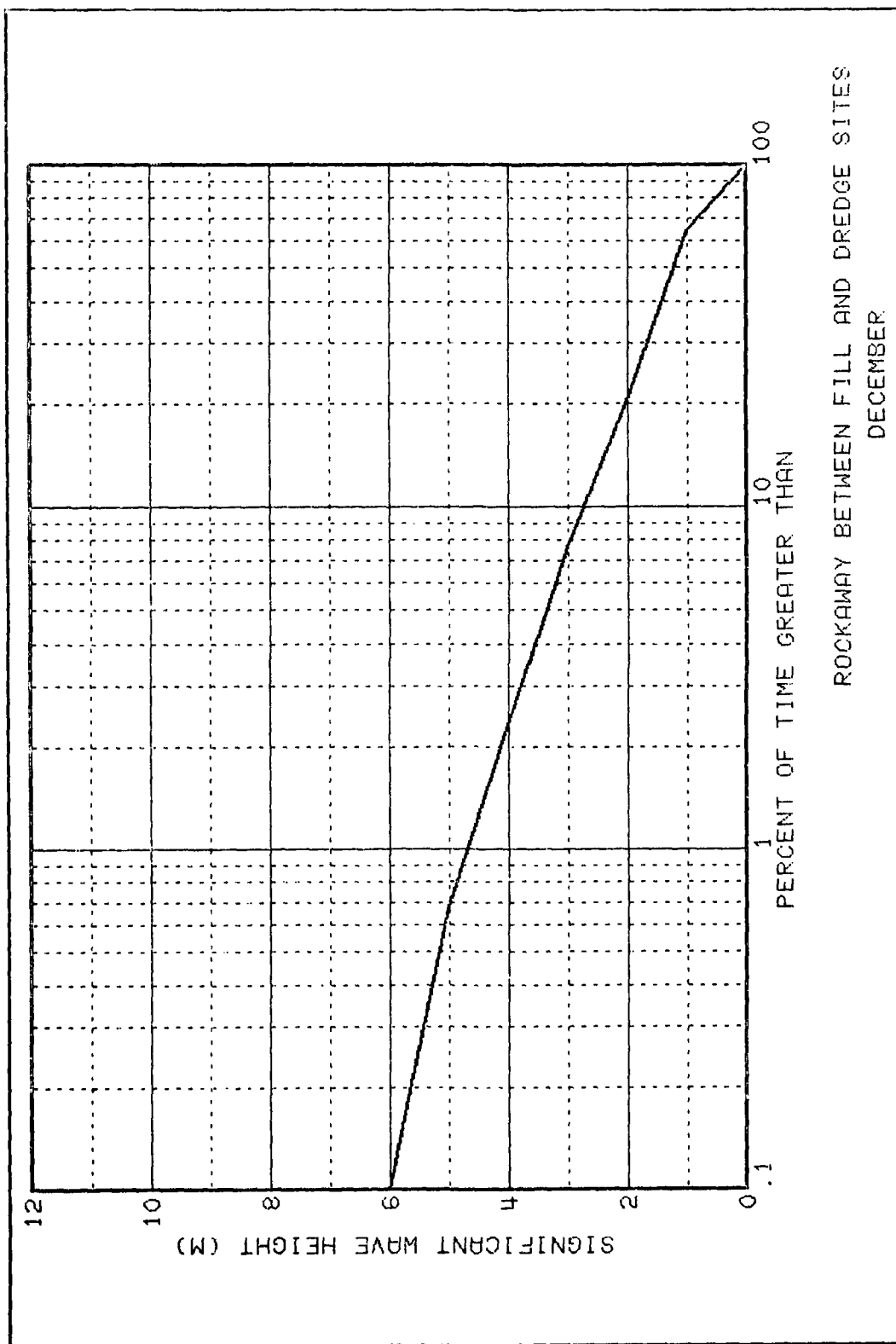
ROCKAWAY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	28.61	2.20	0.88	0.56	0.17	0.08	0.00	0.00	0.51	0.51	39.52
01-02	32.11	6.98	3.69	2.12	0.14	0.58	0.00	0.00	0.33	0.00	45.96
02-03	4.09	5.26	2.39	1.60	0.09	0.08	0.00	0.00	0.00	0.00	13.45
03-04	0.51	2.58	0.86	0.29	0.00	0.11	0.00	0.00	0.00	0.00	4.25
04-05	0.17	1.16	0.29	0.00	0.09	0.04	0.00	0.00	0.00	0.00	1.76
05-06	0.15	0.43	0.00	0.00	0.25	0.13	0.00	0.00	0.00	0.00	0.96
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	65.65	18.61	3.12	4.57	0.68	1.02	0.00	0.00	0.63	0.51	



ROCKAWAY BETWEEN FILL AND DREDGE SITES
 CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	TOTAL
00-01	27.65	3.45	2.33	1.11	0.37	0.43	0.00	0.00	0.23	0.00	35.57
01-02	26.62	10.34	5.79	1.22	0.09	0.04	0.00	0.00	0.00	0.00	44.09
02-03	2.52	7.57	2.11	0.39	0.03	0.12	0.00	0.00	0.00	0.00	12.73
03-04	0.89	2.74	1.17	0.14	0.21	0.12	0.03	0.00	0.00	0.00	5.30
04-05	0.00	1.00	0.00	0.16	0.20	0.00	0.18	0.00	0.10	0.00	1.64
05-06	0.00	0.49	0.00	0.00	0.04	0.00	0.02	0.00	0.13	0.00	0.63
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	57.62	25.53	11.40	3.02	0.93	0.70	0.23	0.00	0.46	0.00	



ROCKAWAY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD

WAVE DIRECTION = 90

HEIGHT (M)	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	TOTAL
00-01	7.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.30
01-02	7.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.33
02-03	1.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13
03-04	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12
04-05	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	15.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

ROCKAWAY BETWEEN FILL AND DREDGE SITES
 CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 120

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	6.20	1.83	0.50	0.06	0.10	0.05	0.00	0.00	0.04	0.03		9.40
01-02	4.77	4.11	1.42	0.24	0.08	0.04	0.01	0.00	0.02	0.04		10.79
02-03	0.41	2.01	0.95	0.38	0.10	0.03	0.00	0.00	0.00	0.04		3.93
03-04	0.07	0.62	0.32	0.10	0.05	0.02	0.00	0.01	0.01	0.00		1.20
04-05	0.00	0.13	0.05	0.05	0.04	0.03	0.02	0.00	0.01	0.00		0.32
05-06	0.00	0.03	0.01	0.01	0.05	0.02	0.01	0.00	0.01	0.00		0.20
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	12.05	3.77	3.21	0.25	0.43	0.17	0.04	0.01	0.00	0.11		

ROCKAWAY BETWEEN FILL AND DREDGE SITES
 CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 150

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	7.78	0.36	0.43	0.57	0.34	0.17	0.05	0.03	0.26	0.41	10.39
01-02	5.21	0.77	0.77	0.60	0.28	0.11	0.02	0.01	0.06	0.02	8.84
02-03	0.58	1.41	0.31	0.20	0.10	0.05	0.00	0.00	0.01	0.00	2.66
03-04	0.11	0.73	0.09	0.05	0.02	0.01	0.01	0.00	0.00	0.00	1.00
04-05	0.01	0.45	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.50
05-06	0.00	0.08	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.10
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	14.68	3.73	1.60	1.43	0.75	0.34	0.09	0.04	0.34	0.43	

ROCKAWAY BETWEEN FILL AND DREDGE SITES
 CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 180

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	14.56	1.04	0.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.38
01-02	10.90	2.93	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.77
02-03	0.98	1.65	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.79
03-04	0.10	0.52	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63
04-05	0.01	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12
05-06	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	26.56	6.28	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

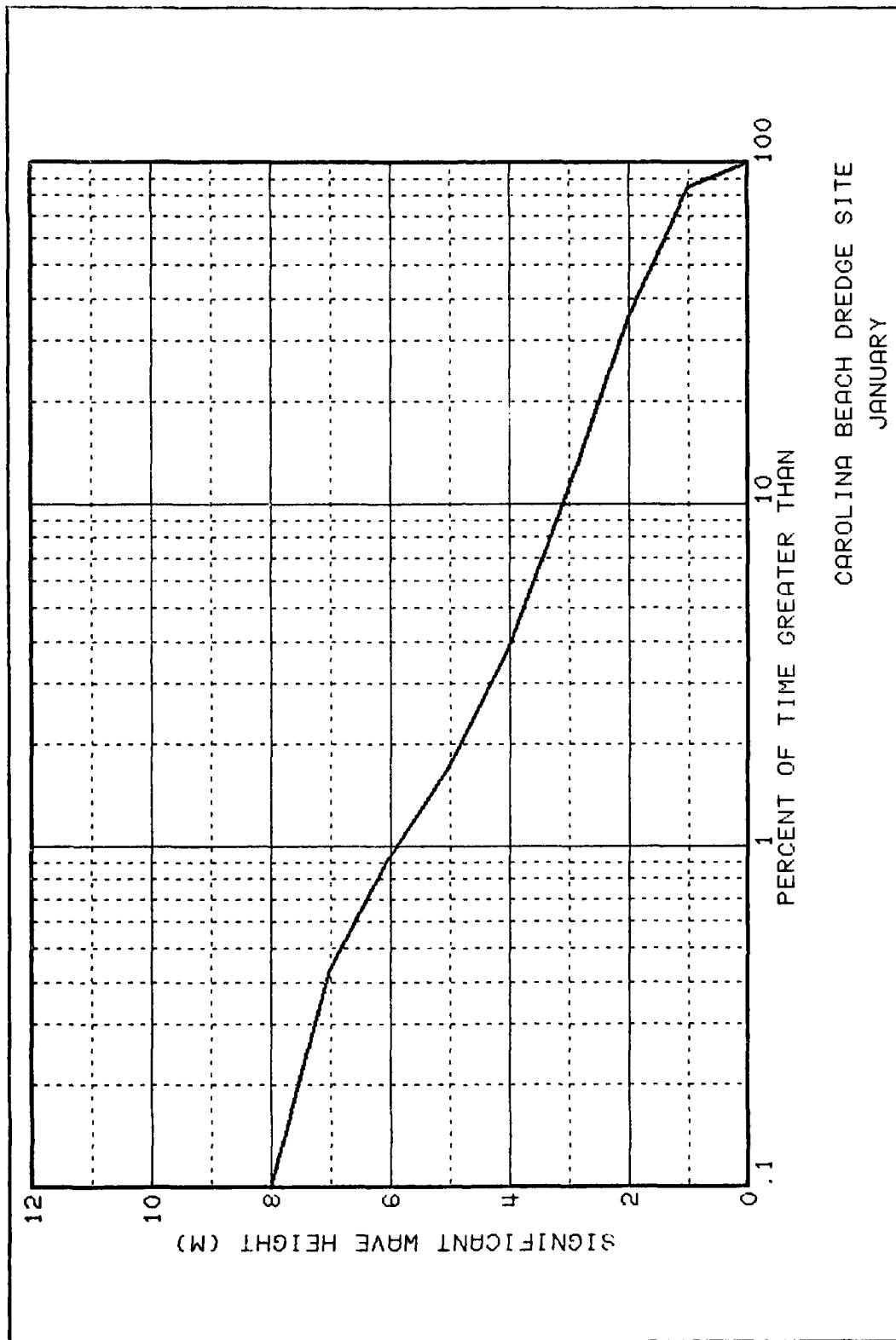
APPENDIX D: AVERAGE WAVE CLIMATE AT CAROLINA BEACH, N. C.

1. Appendix D contains two sets of the following information. One set is for the sand borrow areas at Carolina Beach, N. C., and the other is for the fill area:

- a. Tabulations of monthly percent occurrence of wave-height/
period combinations.
- b. Tabulations of annual percent occurrence by azimuth
direction of wave-height/period combinations.
- c. Plots of monthly significant wave-height occurrence in
terms of the total percent time per month that these
heights are exceeded.

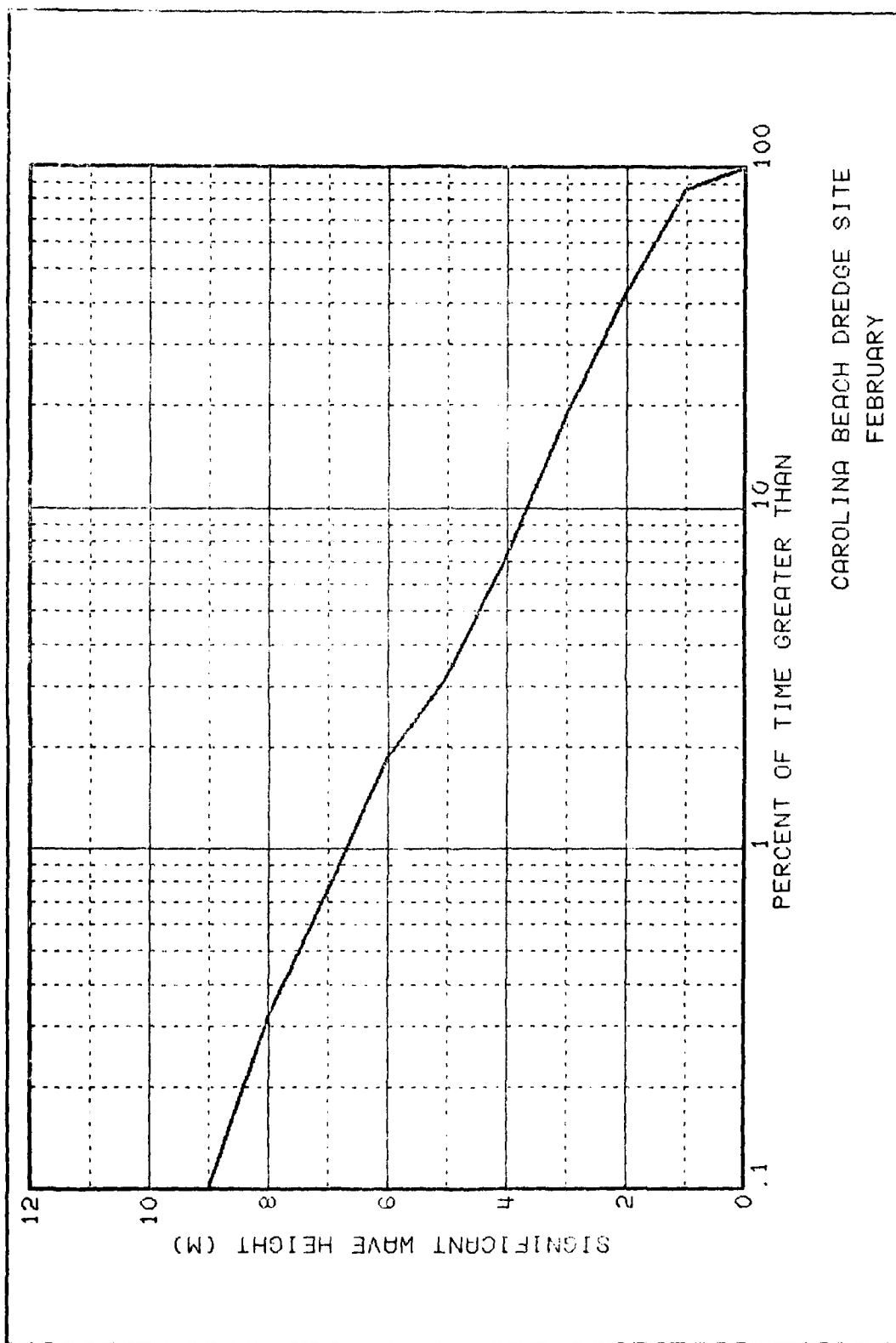
CAROLINA BEACH DREDGE SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JANUARY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21	
00-01	12.69	1.49	0.58	0.14	0.08	0.00	0.00	0.00	0.09	0.22	15.29
01-02	36.45	9.28	2.86	0.43	0.31	0.11	0.00	0.00	0.13	0.23	49.79
02-03	10.17	5.68	4.49	1.69	0.67	0.13	0.00	0.00	0.02	0.04	23.88
03-04	1.52	2.00	1.52	1.36	0.63	0.17	0.00	0.00	0.00	0.00	7.19
04-05	0.27	0.34	0.66	0.69	0.14	0.02	0.00	0.00	0.00	0.00	2.13
05-06	0.27	0.09	0.15	0.14	0.14	0.00	0.00	0.00	0.00	0.00	0.79
06-07	0.04	0.06	0.07	0.09	0.12	0.03	0.00	0.00	0.00	0.10	0.50
07-08	0.11	0.12	0.01	0.05	0.04	0.04	0.00	0.00	0.00	0.03	0.39
08-09	0.01	0.01	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.05
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	61.53	20.06	10.33	4.59	2.14	0.49	0.00	0.00	0.25	0.61	



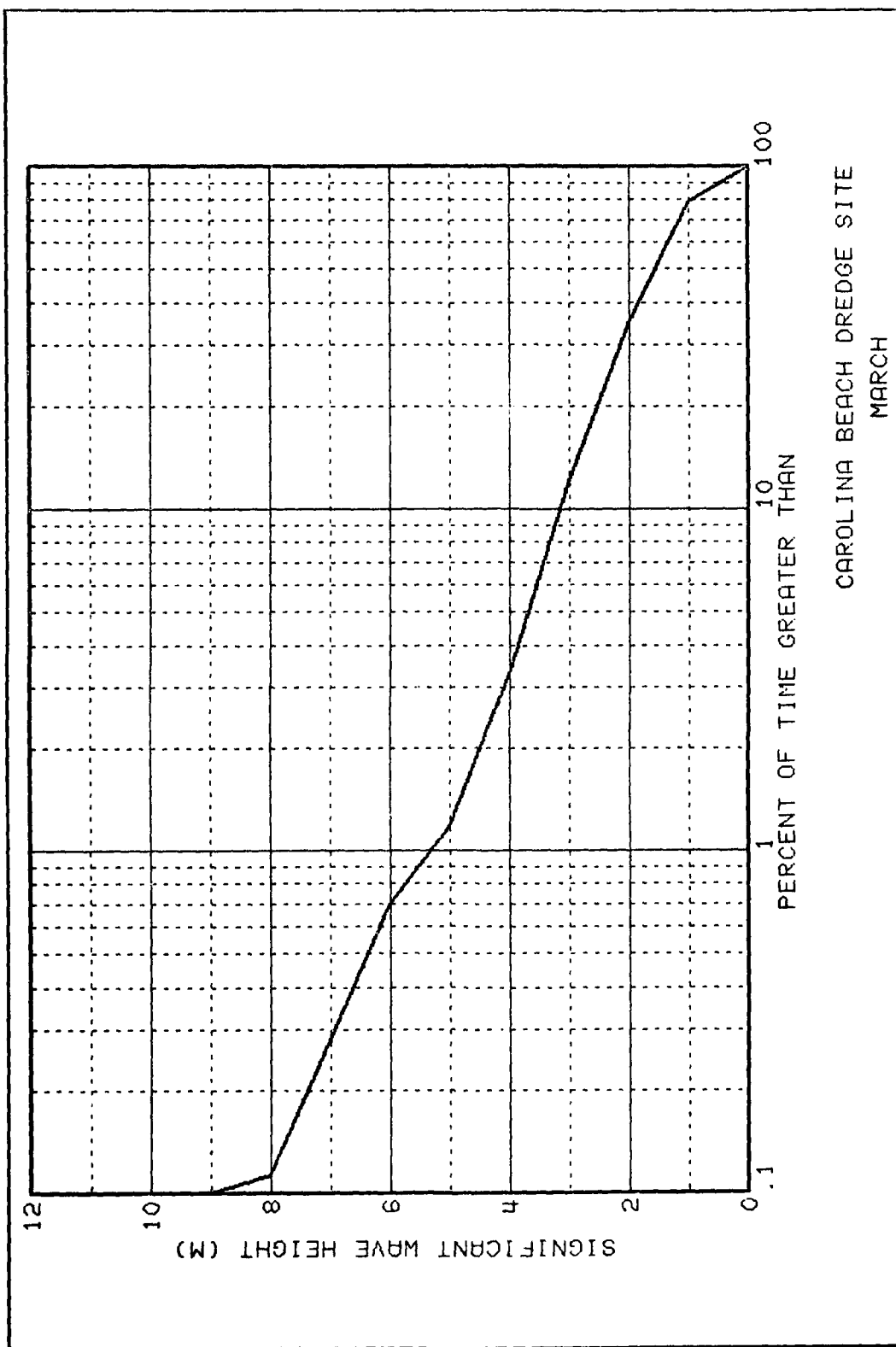
CAROLINA BEACH DREDGE SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-5	6-7	9-9	10-11	12-13	14-15	16-17	18-19	20-21	>21	
00-01	11.55	1.25	0.25	0.08	0.10	0.00	0.00	0.00	0.14	0.16	13.53
01-02	28.90	10.27	2.98	0.71	0.50	0.16	0.00	0.00	0.04	0.06	43.62
02-03	7.53	8.76	5.37	1.75	0.53	0.14	0.05	0.00	0.00	0.03	24.25
03-04	2.56	2.44	3.18	2.30	0.48	0.24	0.13	0.00	0.00	0.00	11.33
04-05	0.95	0.78	1.21	0.58	0.41	0.08	0.03	0.00	0.00	0.00	4.03
05-06	0.25	0.20	0.33	0.28	0.14	0.08	0.06	0.00	0.00	0.00	1.35
06-07	0.46	0.07	0.19	0.09	0.23	0.04	0.04	0.00	0.00	0.00	1.11
07-08	0.10	0.00	0.18	0.09	0.02	0.03	0.00	0.00	0.00	0.00	0.43
08-09	0.01	0.00	0.04	0.02	0.10	0.03	0.00	0.00	0.00	0.00	0.26
09-10	0.00	0.00	0.05	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.06
TOTAL	52.32	23.77	13.73	5.95	2.60	0.80	0.31	0.00	0.19	0.25	



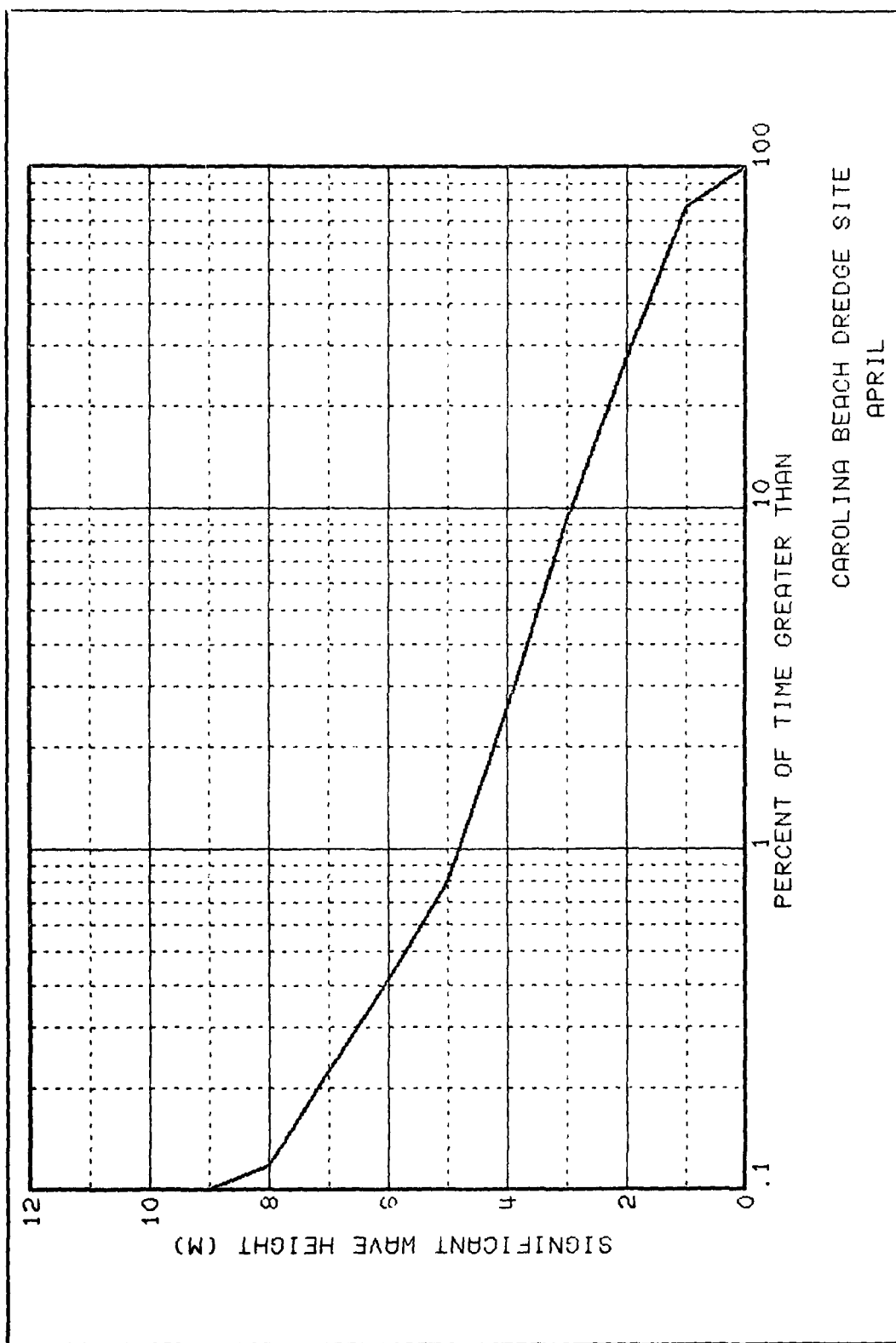
CAROLINA BEACH DREDGE SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MARCH

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21	
00-01	18.53	1.63	0.40	0.19	0.06	0.00	0.00	0.00	0.08	0.29	21.20
01-02	30.51	9.66	2.84	0.77	0.18	0.03	0.04	0.08	0.06	0.15	44.37
02-03	7.67	7.76	4.97	1.39	0.31	0.17	0.01	0.06	0.01	0.01	22.34
03-04	2.30	2.26	2.52	1.28	0.30	0.03	0.00	0.07	0.00	0.00	8.92
04-05	0.55	0.71	0.31	0.31	0.14	0.08	0.00	0.00	0.00	0.00	2.10
05-06	0.12	0.11	0.06	0.04	0.06	0.04	0.03	0.00	0.00	0.00	0.48
06-07	0.01	0.09	0.04	0.13	0.07	0.00	0.07	0.00	0.00	0.00	0.42
07-08	0.05	0.10	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.17
08-09	0.00	0.02	0.00	0.05	0.00	0.01	0.00	0.00	0.00	0.00	0.07
09-10	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.04
TOTAL	59.75	22.34	11.15	4.17	1.12	0.51	0.15	0.20	0.15	0.46	



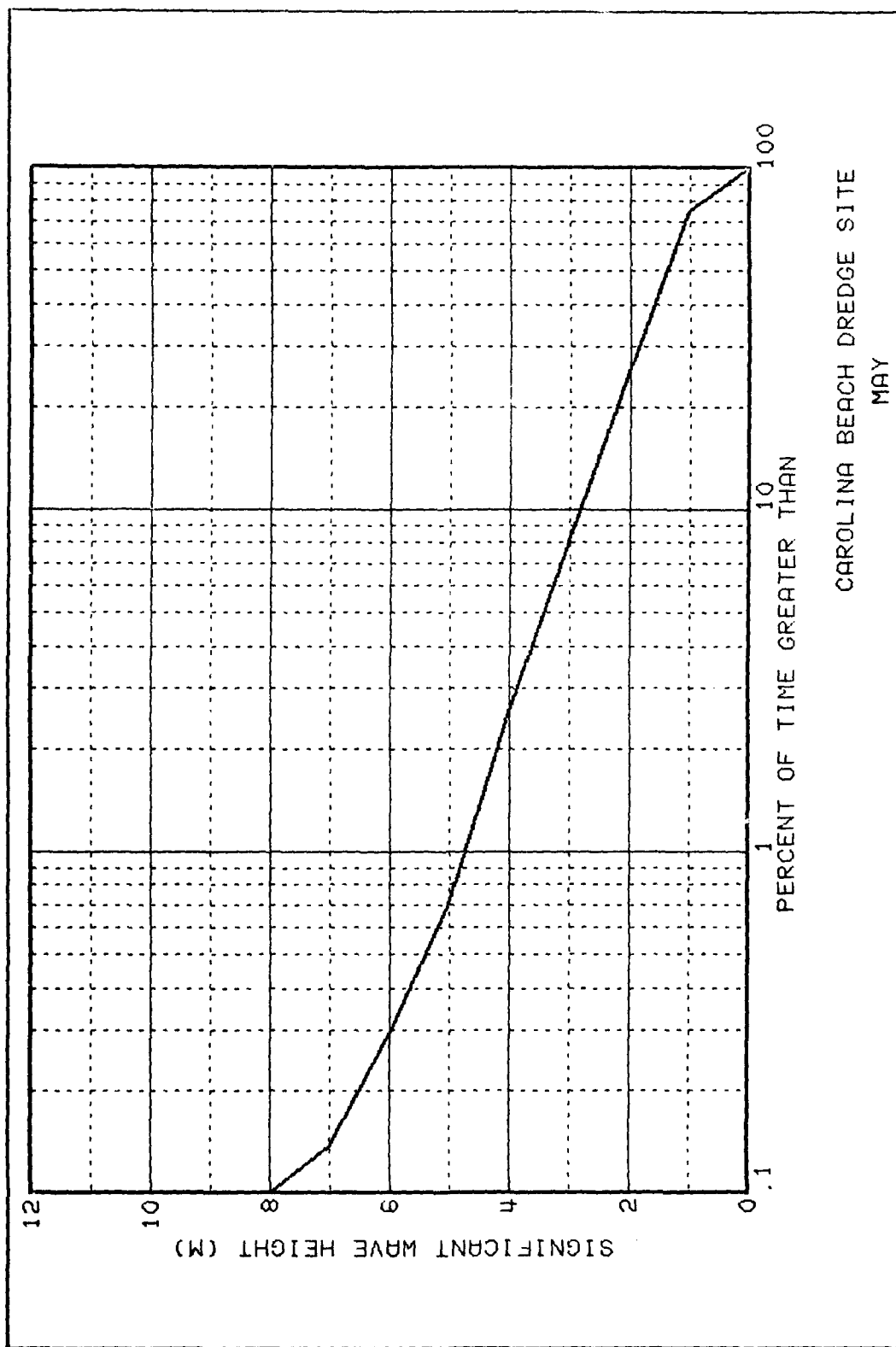
CAROLINA BEACH DREDGE SITE
CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR APRIL

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21	
00-01	19.95	1.81	0.71	0.13	0.07	0.00	0.00	0.00	0.16	0.57	23.39
01-02	34.74	10.62	2.54	0.74	0.29	0.05	0.09	0.00	0.16	0.10	49.34
02-03	6.68	6.86	3.05	1.06	0.30	0.13	0.00	0.00	0.04	0.00	18.12
03-04	2.18	1.85	1.57	0.61	0.25	0.06	0.01	0.00	0.07	0.00	6.60
04-05	0.21	0.45	0.39	0.38	0.18	0.03	0.09	0.01	0.00	0.00	1.74
05-06	0.01	0.03	0.07	0.13	0.03	0.06	0.00	0.04	0.00	0.00	0.38
06-07	0.00	0.00	0.00	0.07	0.04	0.05	0.00	0.04	0.00	0.00	0.19
07-08	0.05	0.00	0.00	0.00	0.01	0.02	0.01	0.01	0.00	0.00	0.11
08-09	0.00	0.00	0.00	0.01	0.00	0.03	0.04	0.00	0.00	0.00	0.08
09-10	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.04
TOTAL	63.82	21.63	8.33	3.18	1.16	0.43	0.24	0.10	0.43	0.67	



CAROLINA BEACH DREDGE SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

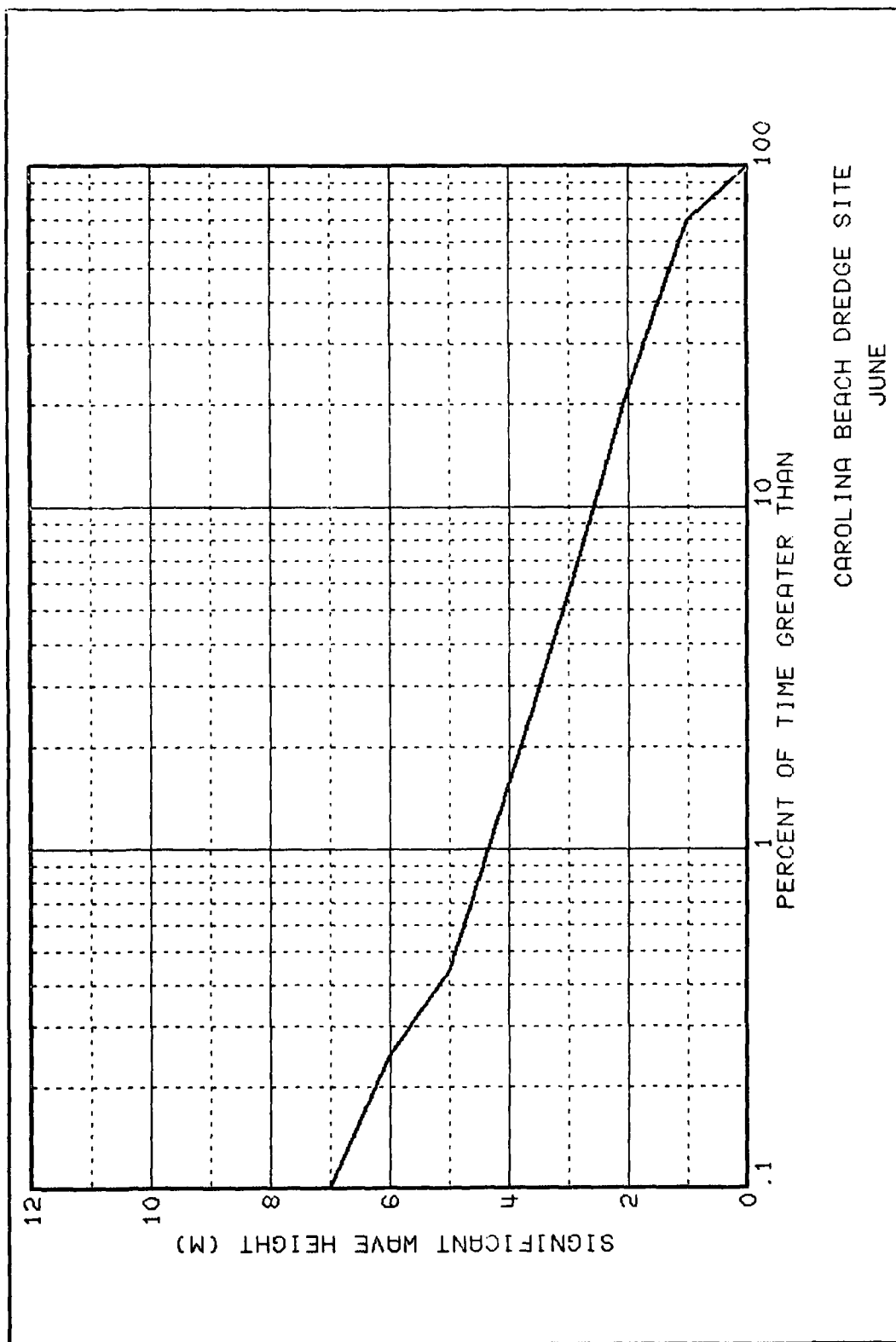
HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21	
00-01	22.00	1.91	0.71	0.21	0.15	0.05	0.00	0.00	0.04	0.25	25.31
01-02	33.68	11.53	2.80	0.69	0.18	0.14	0.00	0.02	0.07	0.16	49.29
02-03	6.54	6.08	3.17	1.04	0.13	0.18	0.00	0.02	0.06	0.06	17.28
03-04	1.27	1.90	1.57	0.54	0.09	0.17	0.00	0.00	0.01	0.00	5.56
04-05	0.24	0.49	0.47	0.27	0.16	0.15	0.04	0.00	0.03	0.00	1.85
05-06	0.01	0.12	0.16	0.02	0.09	0.00	0.00	0.00	0.00	0.00	0.41
06-07	0.00	0.06	0.01	0.08	0.01	0.00	0.00	0.00	0.00	0.00	0.16
07-08	0.00	0.01	0.00	0.04	0.00	0.01	0.00	0.00	0.00	0.00	0.06
08-09	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.03
09-10	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.03
>10	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02
TOTAL	63.75	22.10	8.89	2.90	0.87	0.73	0.04	0.04	0.22	0.47	



CAROLINA BEACH DREDGE SITE

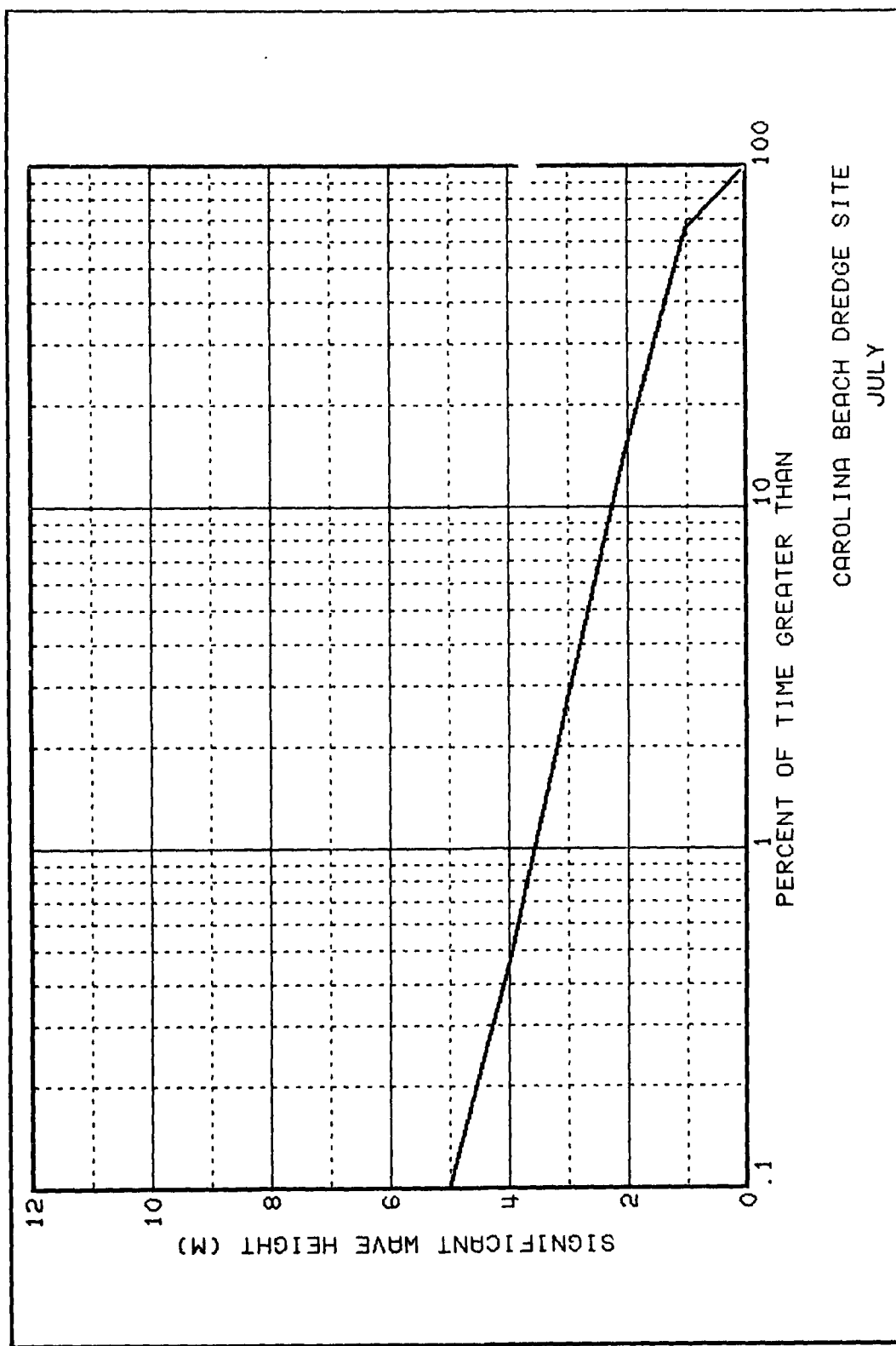
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21		
00-01	26.68	2.35	0.69	0.08	0.03	0.01	0.00	0.00	0.24	0.77	30.86	
01-02	21.72	11.36	2.85	0.71	0.34	0.06	0.00	0.04	0.12	0.21	47.40	
02-03	5.58	5.91	3.07	1.11	0.27	0.18	0.00	0.00	0.02	0.04	16.19	
03-04	0.36	1.54	1.28	0.62	0.11	0.07	0.03	0.00	0.01	0.00	4.02	
04-05	0.09	0.35	0.14	0.25	0.16	0.05	0.02	0.00	0.03	0.00	1.10	
05-06	0.00	0.05	0.01	0.06	0.02	0.05	0.00	0.00	0.00	0.00	0.19	
06-07	0.04	0.00	0.00	0.00	0.08	0.05	0.00	0.00	0.00	0.00	0.18	
07-08	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	
08-09	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	
09-10	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.03	
TOTAL	64.48	21.55	8.04	2.88	1.02	0.51	0.04	0.04	0.42	1.02		



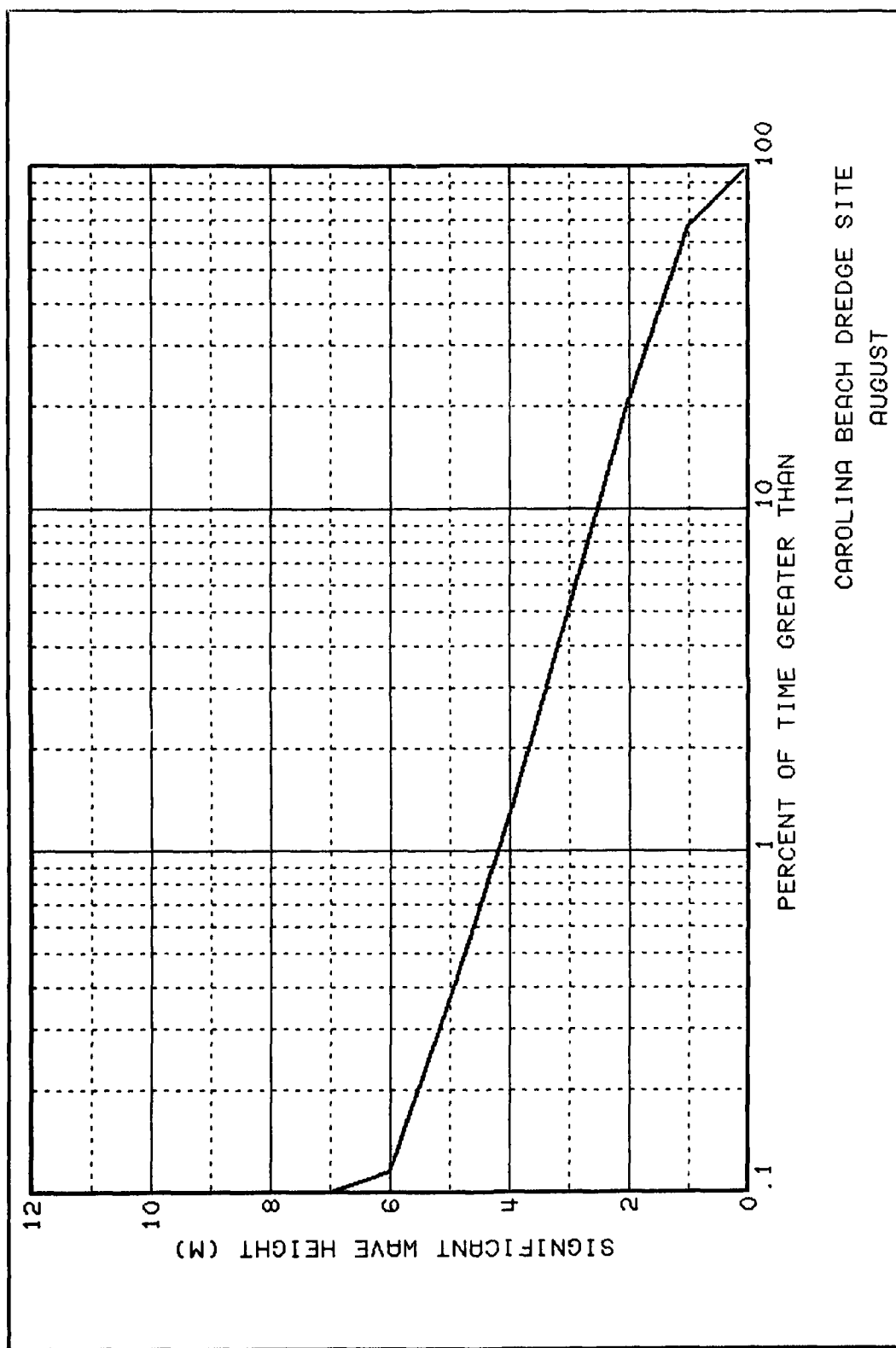
CAROLINA BEACH DREDGE SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

HEIGHT (M)	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21	TOTAL
00-01	29.21	2.01	1.30	0.18	0.21	0.06	0.10	0.00	0.56	0.81	34.45
01-02	33.44	11.95	3.12	0.49	0.31	0.06	0.01	0.04	0.23	0.45	50.10
02-03	4.11	5.27	2.09	0.80	0.20	0.07	0.00	0.02	0.08	0.07	12.69
03-04	0.47	1.06	0.17	0.46	0.09	0.06	0.00	0.00	0.00	0.00	2.31
04-05	0.01	0.06	0.05	0.04	0.15	0.04	0.00	0.00	0.00	0.00	0.36
05-06	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.03
06-07	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02
07-08	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.03
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	67.24	20.35	6.72	1.97	0.99	0.35	0.12	0.06	0.67	1.33	



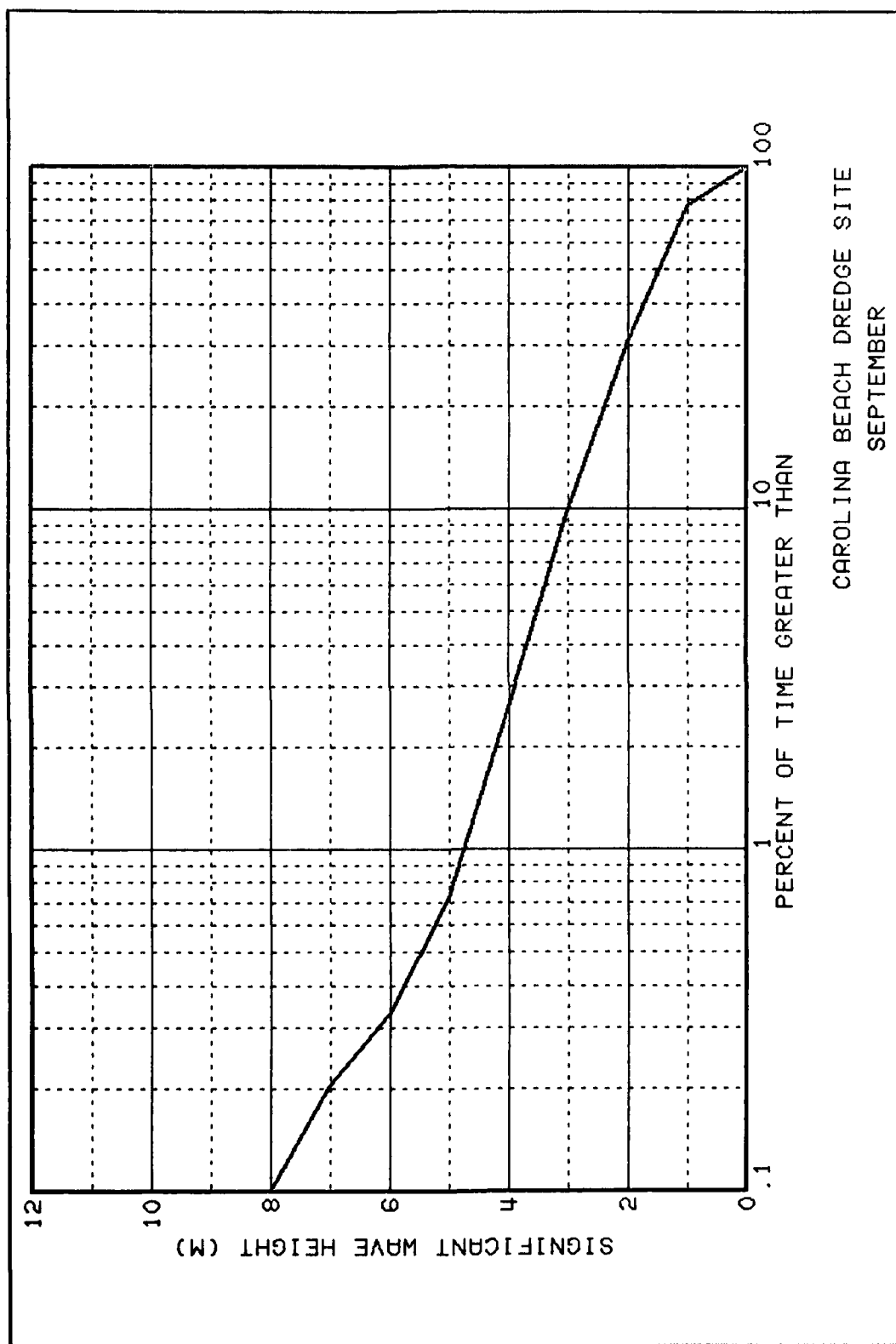
CAROLINA BEACH DREDGE SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21	
00-01	29.16	2.03	0.66	0.24	0.10	0.10	0.09	0.00	0.37	0.39	33.12
01-02	30.67	10.69	3.20	0.83	0.17	0.12	0.00	0.04	0.05	0.22	46.00
02-03	4.86	5.62	3.00	1.53	0.46	0.21	0.00	0.00	0.01	0.04	15.74
03-04	0.77	1.33	0.69	0.65	0.26	0.11	0.00	0.00	0.03	0.01	3.87
04-05	0.29	0.18	0.25	0.08	0.02	0.02	0.00	0.00	0.00	0.04	0.89
05-06	0.05	0.07	0.05	0.05	0.03	0.00	0.00	0.00	0.00	0.00	0.25
06-07	0.00	0.01	0.00	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.08
07-08	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.04
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	65.81	13.93	7.86	3.47	1.06	0.55	0.09	0.05	0.46	0.69	



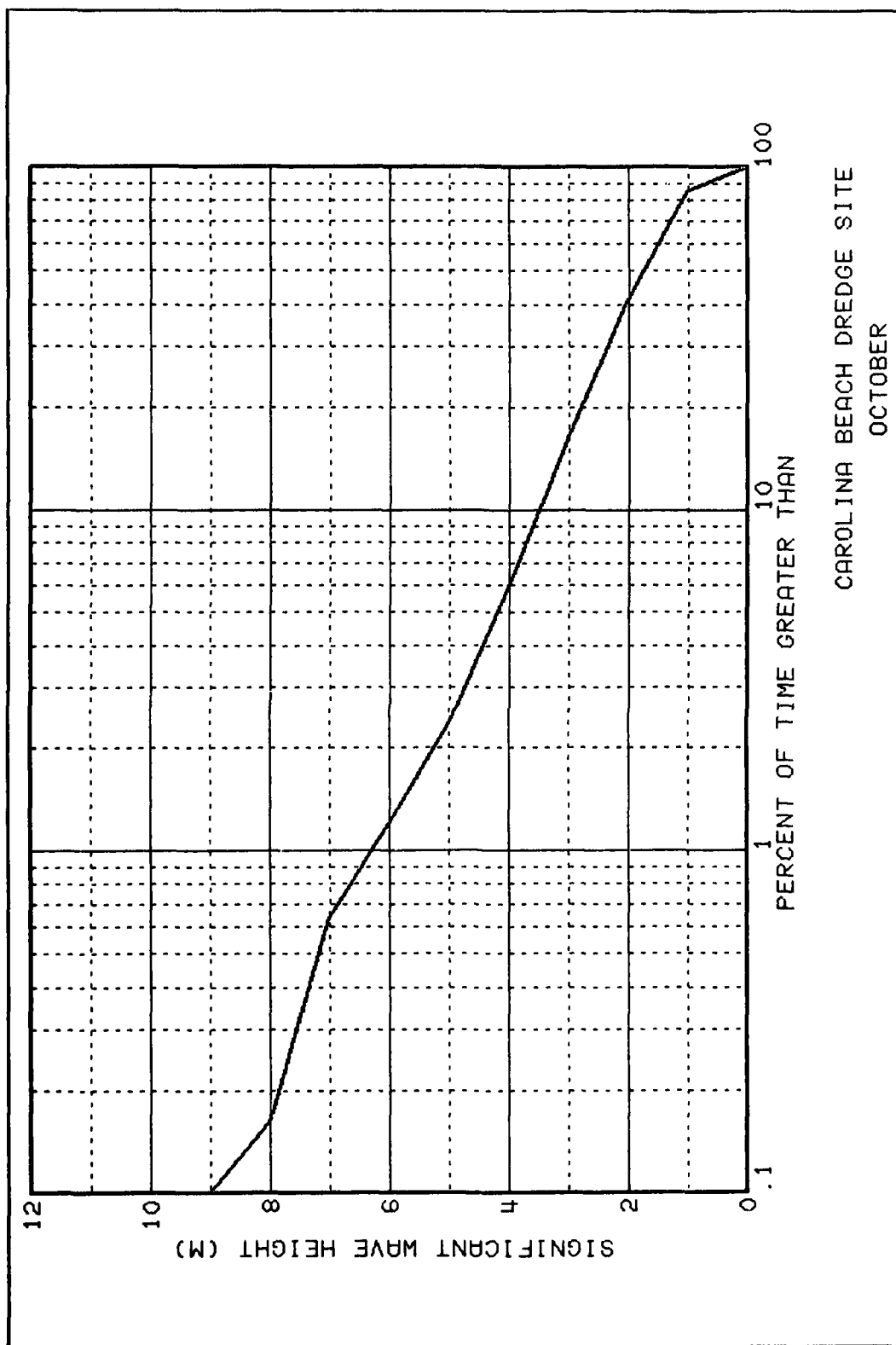
CAROLINA BEACH DREDGE SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21	
00-01	20.60	1.13	0.50	0.14	0.18	0.01	0.00	0.05	0.17	0.28	23.07
01-02	29.61	11.89	2.76	0.98	0.38	0.20	0.05	0.01	0.15	0.06	46.09
02-03	5.92	7.86	4.54	1.63	0.72	0.19	0.03	0.00	0.03	0.03	20.95
03-04	0.99	2.53	2.03	1.03	0.35	0.26	0.04	0.00	0.02	0.02	7.27
04-05	0.14	0.46	0.61	0.42	0.18	0.06	0.00	0.00	0.01	0.03	1.90
05-06	0.04	0.03	0.11	0.08	0.09	0.03	0.00	0.00	0.00	0.00	0.39
06-07	0.00	0.04	0.04	0.00	0.04	0.00	0.01	0.00	0.00	0.00	0.12
07-08	0.00	0.02	0.07	0.00	0.01	0.00	0.03	0.00	0.00	0.00	0.13
08-09	0.00	0.00	0.04	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.07
09-10	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
TOTAL	57.30	23.97	10.70	4.29	1.94	0.75	0.19	0.06	0.38	0.41	



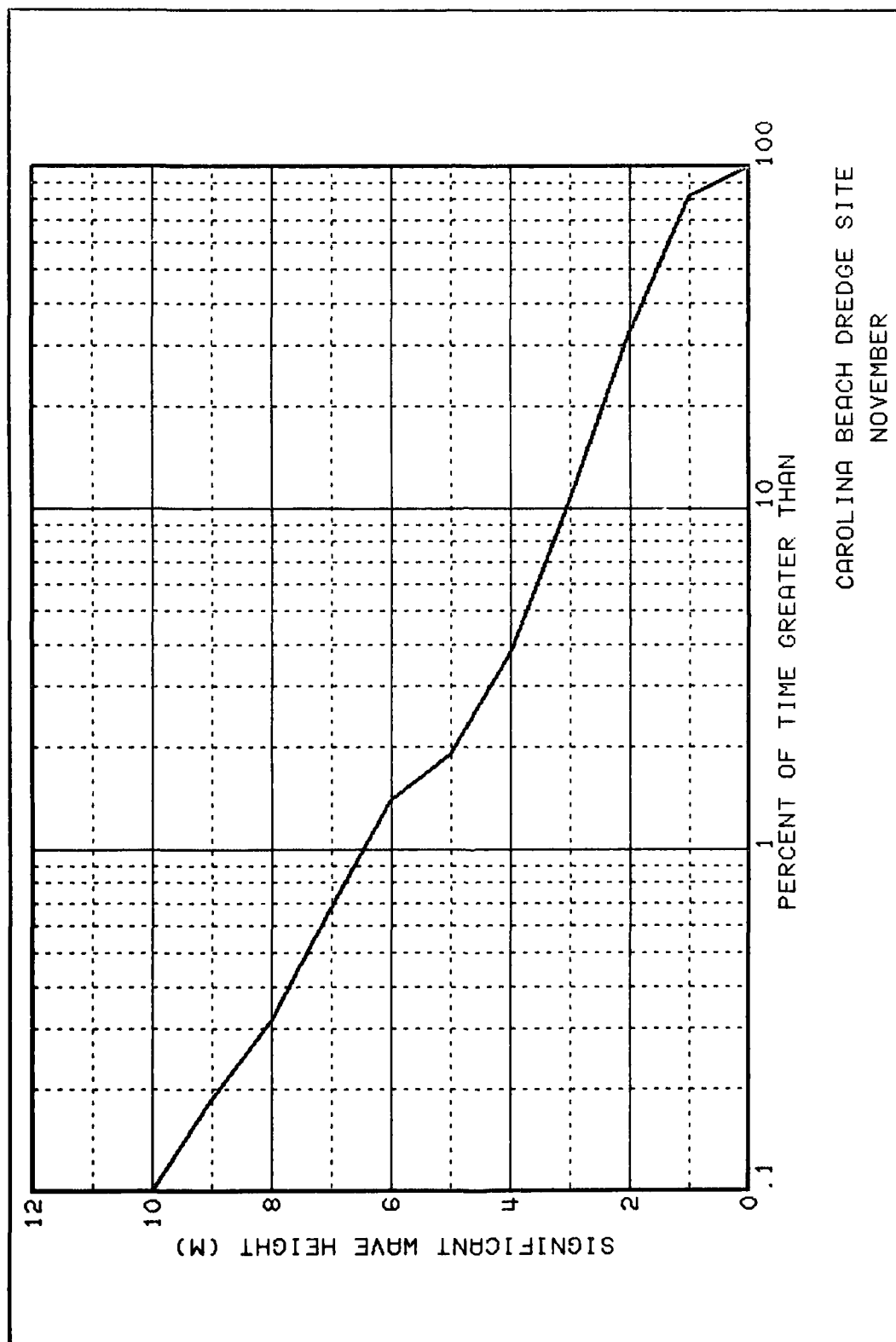
CAROLINA BEACH DREDGE SITE
CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21	TOTAL
00-01	12.96	1.08	0.25	0.10	0.04	0.00	0.00	0.00	0.03	0.19	14.64
01-02	28.83	11.04	2.71	1.00	0.30	0.07	0.00	0.00	0.02	0.05	44.02
02-03	9.25	8.05	4.81	1.91	0.66	0.25	0.00	0.03	0.01	0.00	24.97
03-04	2.97	2.69	2.47	1.57	0.59	0.12	0.02	0.01	0.01	0.00	10.44
04-05	0.57	0.61	1.08	0.68	0.30	0.19	0.05	0.06	0.03	0.00	3.58
05-06	0.31	0.18	0.30	0.12	0.11	0.08	0.03	0.00	0.00	0.00	1.15
06-07	0.15	0.14	0.04	0.07	0.01	0.15	0.00	0.00	0.00	0.00	0.56
07-08	0.06	0.15	0.03	0.04	0.02	0.18	0.01	0.00	0.00	0.00	0.48
08-09	0.00	0.04	0.01	0.01	0.01	0.05	0.03	0.00	0.00	0.00	0.14
09-10	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02
TOTAL	55.10	23.98	11.70	5.50	2.04	1.11	0.13	0.10	0.10	0.23	



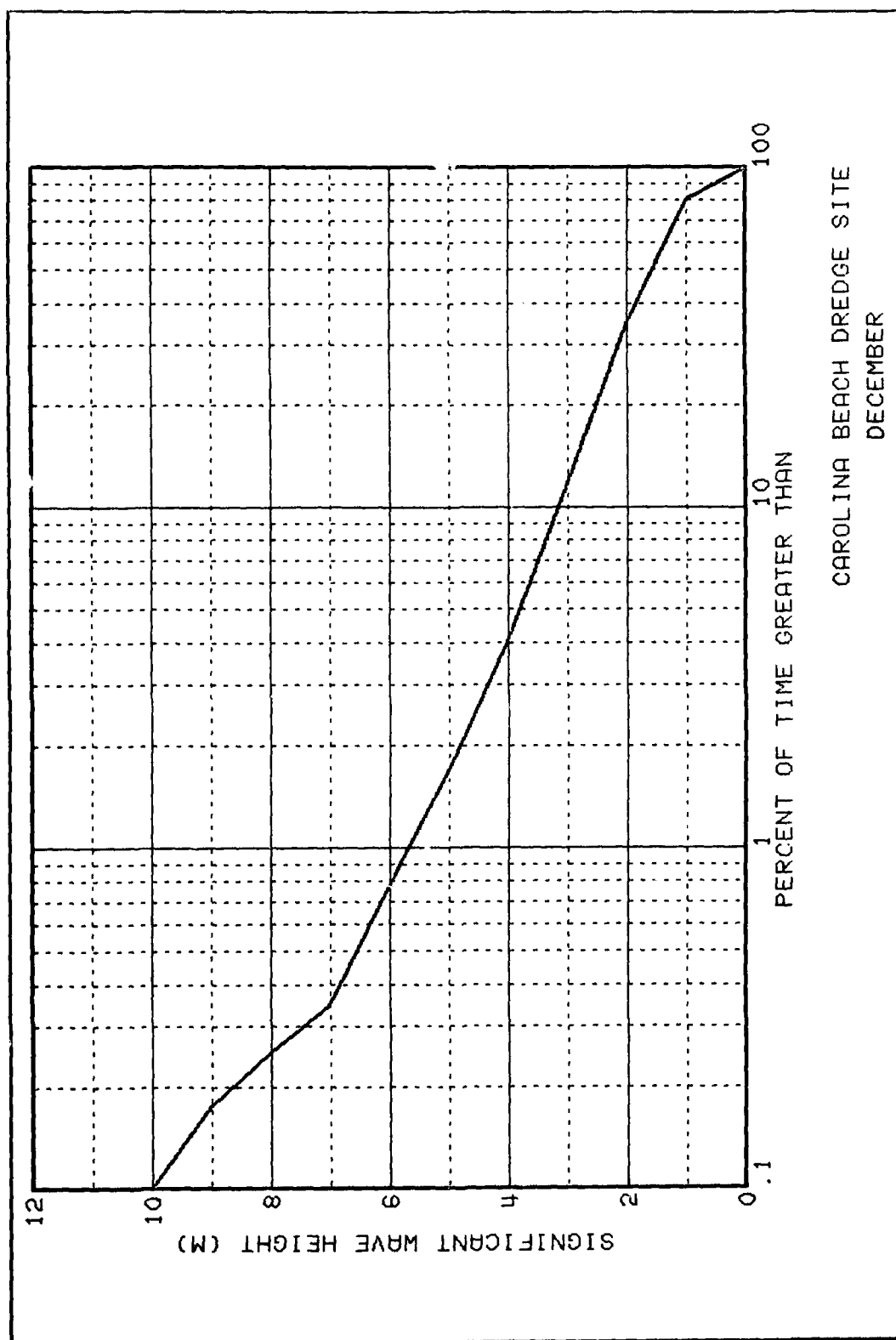
CAROLINA BEACH DREDGE SITE
CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER

HEIGHT (M)	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21	TOTAL
00-01	15.72	1.54	0.25	0.22	0.01	0.00	0.04	0.00	0.16	0.29	18.22
01-02	32.23	12.75	3.15	0.70	0.13	0.07	0.00	0.00	0.03	0.08	49.14
02-03	7.50	7.72	4.94	1.27	0.39	0.16	0.00	0.00	0.10	0.02	22.09
03-04	1.60	1.88	1.55	1.26	0.32	0.12	0.08	0.00	0.05	0.00	6.84
04-05	0.34	0.39	0.31	0.38	0.15	0.14	0.08	0.00	0.04	0.00	1.84
05-06	0.03	0.08	0.15	0.03	0.07	0.06	0.03	0.00	0.00	0.04	0.50
06-07	0.26	0.00	0.14	0.04	0.05	0.22	0.00	0.00	0.00	0.01	0.72
07-08	0.07	0.01	0.05	0.00	0.00	0.18	0.05	0.00	0.00	0.00	0.26
08-09	0.00	0.04	0.01	0.00	0.00	0.02	0.05	0.00	0.00	0.00	0.13
09-10	0.00	0.04	0.00	0.00	0.03	0.00	0.05	0.03	0.00	0.00	0.15
>10	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.01	0.00	0.00	0.03
TOTAL	57.75	24.45	10.54	3.90	1.16	0.97	0.39	0.05	0.39	0.44	



CAROLINA BEACH DREDGE SITE
CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21	
00-01	17.39	1.05	0.51	0.13	0.01	0.02	0.00	0.06	0.05	0.54	19.70
01-02	23.54	11.72	2.85	1.02	0.30	0.16	0.00	0.00	0.04	0.18	45.82
02-03	7.03	7.81	5.30	1.92	0.42	0.07	0.04	0.00	0.08	0.05	22.73
03-04	1.47	2.11	1.85	1.57	0.54	0.00	0.06	0.00	0.08	0.05	7.71
04-05	0.62	0.56	0.55	0.28	0.26	0.07	0.02	0.00	0.00	0.00	2.36
05-06	0.13	0.17	0.25	0.15	0.13	0.07	0.00	0.00	0.00	0.00	0.90
06-07	0.17	0.05	0.10	0.03	0.03	0.05	0.00	0.00	0.00	0.00	0.43
07-08	0.03	0.02	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10
08-09	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.08
09-10	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.13
>10	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.04
TOTAL	56.39	23.47	11.52	5.10	1.70	0.44	0.12	0.19	0.25	0.02	



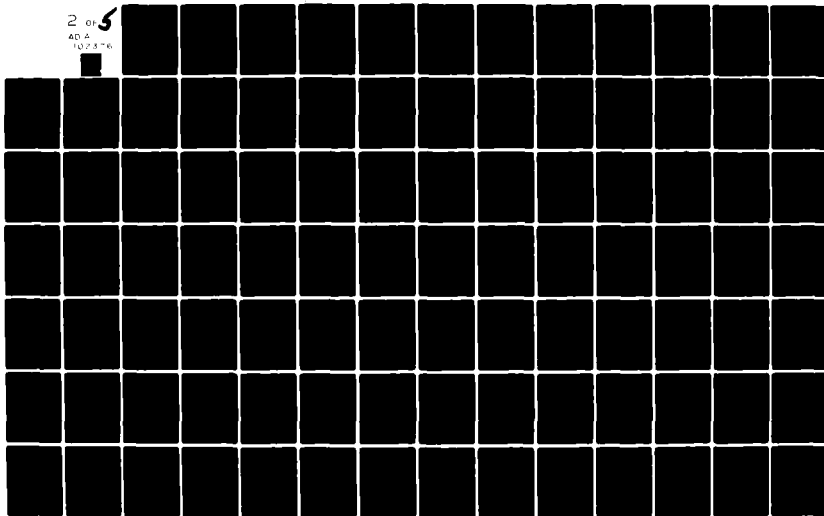
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ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG MS F/G 8/3
BEACH NOURISHMENT TECHNIQUES. REPORT 4. WAVE CLIMATES FOR SELEC--ETC(U)
APR 81 D L DURHAM, L Z HALES, T W RICHARDSON
WES-TR-H-76-13-4-APP

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CAROLINA BEACH DREDGE SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 30

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21		
00-01	2.35	0.53	0.05	0.02	0.02	0.00	0.00	0.00	0.02	0.03		3.03
01-02	4.62	2.13	0.42	0.13	0.05	0.01	0.00	0.00	0.00	0.01		7.37
02-03	1.24	1.19	0.91	0.30	0.09	0.04	0.00	0.00	0.00	0.00		3.78
03-04	0.27	0.27	0.46	0.20	0.07	0.02	0.01	0.00	0.00	0.00		1.30
04-05	0.07	0.03	0.13	0.08	0.02	0.02	0.01	0.00	0.01	0.00		0.37
05-06	0.02	0.01	0.04	0.03	0.01	0.01	0.01	0.00	0.00	0.00		0.12
06-07	0.02	0.01	0.02	0.01	0.02	0.01	0.00	0.00	0.00	0.01		0.10
07-08	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00		0.03
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00		0.01
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	8.60	4.16	2.04	0.77	0.28	0.11	0.05	0.01	0.03	0.05		

CAROLINA BEACH DREDGE SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD

WAVE DIRECTION = 60

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21		
00-01	4.54	0.25	0.09	0.03	0.00	0.00	0.01	0.01	0.04	0.09		5.06
01-02	8.45	2.91	0.70	0.20	0.05	0.03	0.00	0.00	0.02	0.04		12.40
02-03	2.09	2.44	1.29	0.48	0.12	0.06	0.01	0.00	0.01	0.01		6.50
03-04	0.46	0.71	0.71	0.46	0.12	0.04	0.01	0.00	0.01	0.00		2.52
04-05	0.09	0.18	0.26	0.17	0.13	0.03	0.01	0.00	0.01	0.01		0.89
05-06	0.03	0.03	0.08	0.04	0.04	0.01	0.00	0.00	0.00	0.00		0.23
06-07	0.00	0.01	0.01	0.03	0.01	0.01	0.00	0.00	0.00	0.00		0.08
07-08	0.01	0.01	0.01	0.01	0.01	0.02	0.00	0.00	0.00	0.00		0.07
08-09	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00		0.03
09-10	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00		0.02
TOTAL	15.65	6.54	3.17	1.42	0.49	0.22	0.04	0.02	0.10	0.15		

CAROLINA BEACH DREDGE SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 90

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21		
00-01	3.75	0.22	0.16	0.04	0.03	0.00	0.00	0.00	0.03	0.08	4.32	
01-02	5.89	2.04	0.76	0.20	0.07	0.02	0.00	0.00	0.03	0.03	9.06	
02-03	1.09	1.40	0.75	0.30	0.11	0.02	0.00	0.00	0.01	0.01	3.69	
03-04	0.20	0.52	0.23	0.19	0.07	0.04	0.00	0.00	0.00	0.00	1.26	
04-05	0.03	0.12	0.05	0.04	0.02	0.02	0.01	0.00	0.00	0.00	0.30	
05-06	0.02	0.03	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.09	
06-07	0.01	0.01	0.01	0.01	0.01	0.02	0.00	0.00	0.00	0.00	0.06	
07-08	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.03	
08-09	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	
TOTAL	10.93	4.38	1.97	0.80	0.31	0.15	0.03	0.02	0.03	0.12		

CAROLINA BEACH DREDGE SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 120

HEIGHT (M)	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21	TOTAL
00-01	1.75	0.21	0.05	0.02	0.01	0.01	0.00	0.00	0.01	0.03	2.08
01-02	2.43	1.04	0.24	0.07	0.03	0.02	0.00	0.00	0.00	0.01	3.85
02-03	0.41	0.52	0.25	0.08	0.04	0.01	0.00	0.00	0.00	0.00	1.31
03-04	0.08	0.11	0.08	0.06	0.02	0.01	0.00	0.00	0.00	0.00	0.36
04-05	0.01	0.01	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.07
05-06	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
06-07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
07-08	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	4.63	1.90	0.65	0.25	0.10	0.06	0.01	0.01	0.01	0.04	

CAROLINA BEACH DREDGE SITE
CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 150

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21		
00-01	3.30	0.20	0.11	0.02	0.03	0.00	0.00	0.00	0.03	0.08		3.77
01-02	4.20	1.35	0.39	0.10	0.05	0.02	0.01	0.01	0.01	0.03		6.16
02-03	0.74	0.65	0.37	0.14	0.05	0.03	0.00	0.00	0.00	0.00		1.99
03-04	0.20	0.17	0.12	0.08	0.03	0.01	0.00	0.00	0.00	0.00		0.61
04-05	0.06	0.05	0.02	0.02	0.01	0.01	0.00	0.00	0.00	0.00		0.15
05-06	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.03
06-07	0.04	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00		0.07
07-08	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00		0.03
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.01
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	8.55	2.44	1.02	0.36	0.16	0.09	0.02	0.02	0.05	0.11		

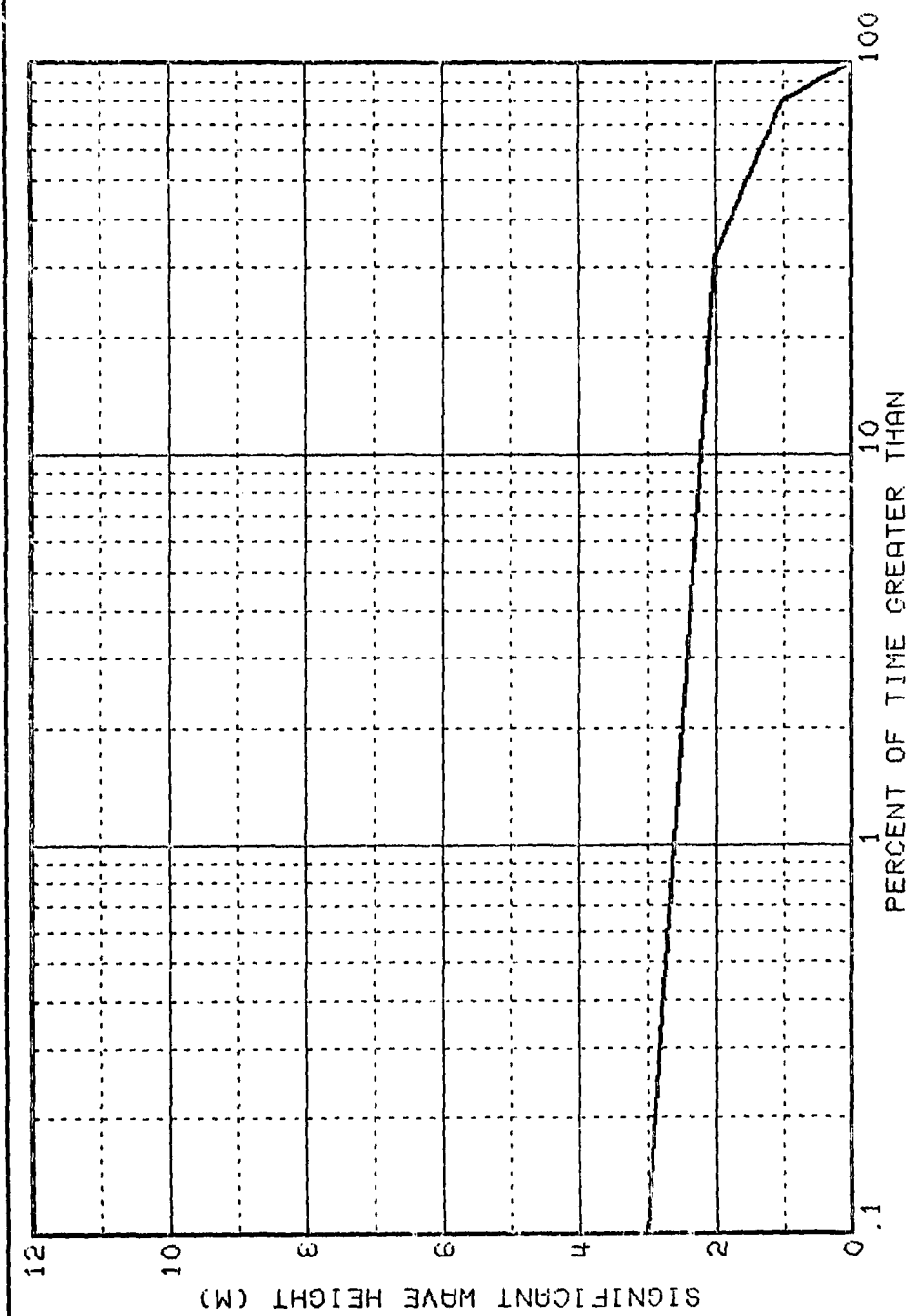
CAROLINA BEACH DREDGE SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 180

HEIGHT (M)	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21	TOTAL
00-01	4.14	0.19	0.09	0.02	0.01	0.01	0.00	0.00	0.04	0.07	4.56
01-02	5.92	1.66	0.38	0.08	0.03	0.01	0.00	0.00	0.02	0.03	8.13
02-03	1.33	0.86	0.49	0.13	0.03	0.01	0.00	0.00	0.01	0.01	2.87
03-04	0.34	0.24	0.12	0.10	0.03	0.00	0.00	0.00	0.01	0.00	0.84
04-05	0.08	0.06	0.03	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.23
05-06	0.02	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.07
06-07	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.04
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
08-09	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.02
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
TOTAL	11.85	3.01	1.12	0.40	0.14	0.05	0.00	0.01	0.07	0.12	

CAROLINA BEACH FILL SITE

CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JANUARY

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21		
00-01	15.20	2.94	0.78	0.19	0.05	0.00	0.00	0.00	0.11	0.17		19.46
01-02	35.45	8.70	3.05	0.58	0.24	0.07	0.00	0.00	0.08	0.13		48.40
02-03	10.89	8.42	6.50	3.82	1.74	0.42	0.00	0.00	0.05	0.31		32.15
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	61.53	20.63	10.83	8.59	2.14	0.49	0.00	0.00	0.25	0.61		

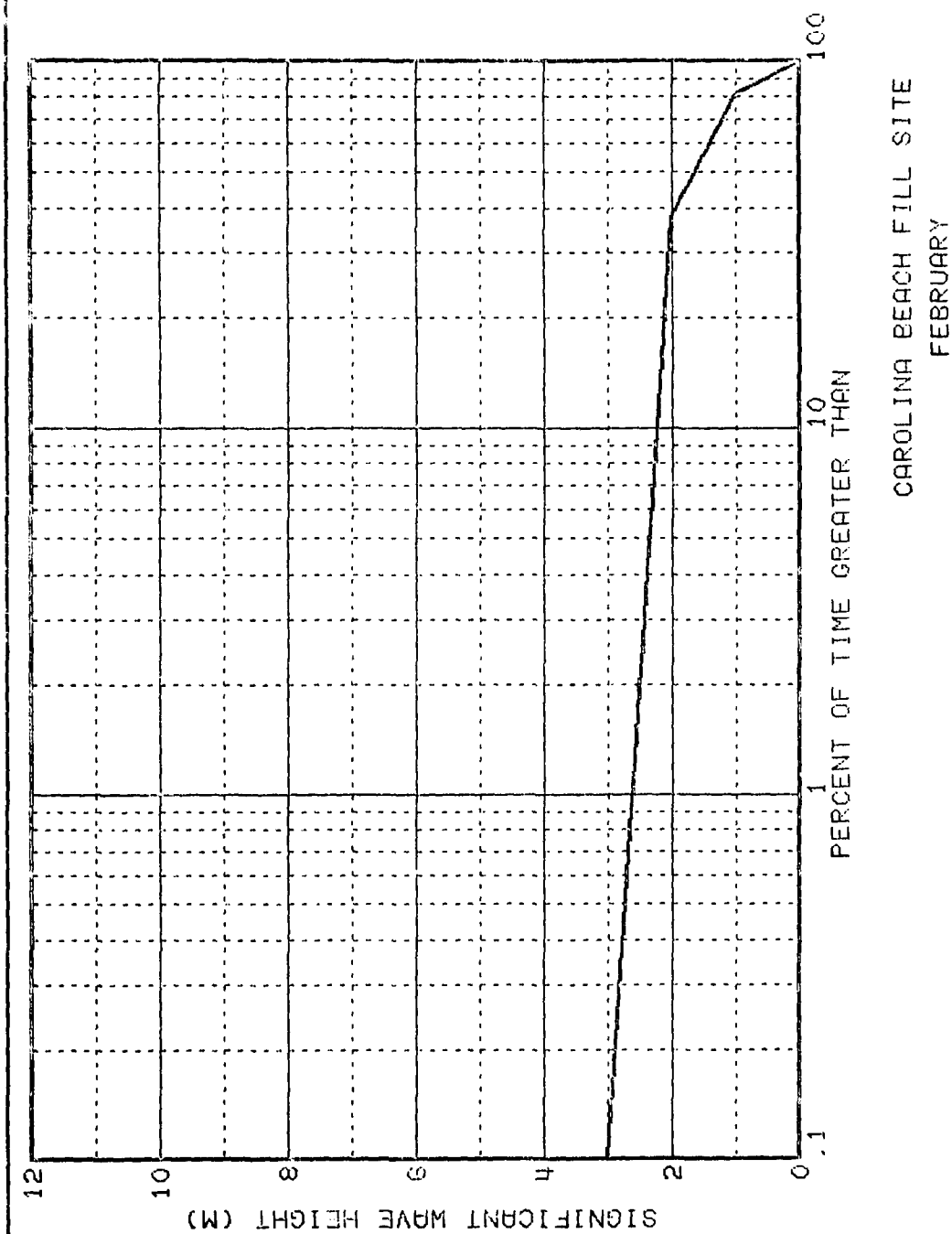


CAROLINA BEACH FILL SITE
JANUARY

CAROLINA BEACH FILL SITE

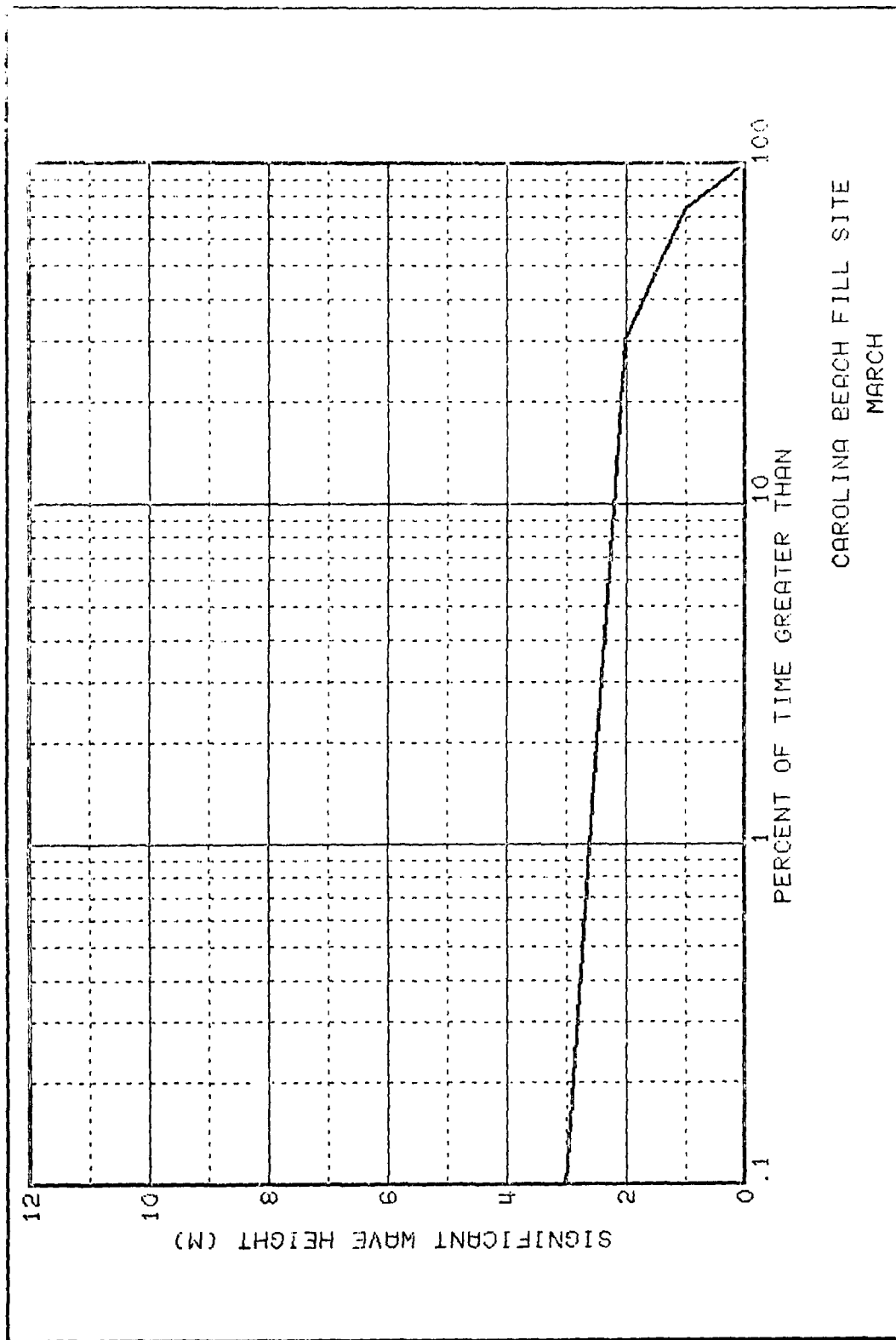
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21	
00-01	13.39	4.02	0.83	0.14	0.04	0.04	0.00	0.00	0.15	0.13	18.76
01-02	28.38	9.74	3.51	1.22	0.35	0.07	0.00	0.00	0.04	0.12	43.42
02-03	10.55	10.00	9.43	4.59	2.21	0.69	0.31	0.00	0.00	0.00	37.79
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	52.32	23.77	13.73	5.95	2.60	0.80	0.31	0.00	0.10	0.25	



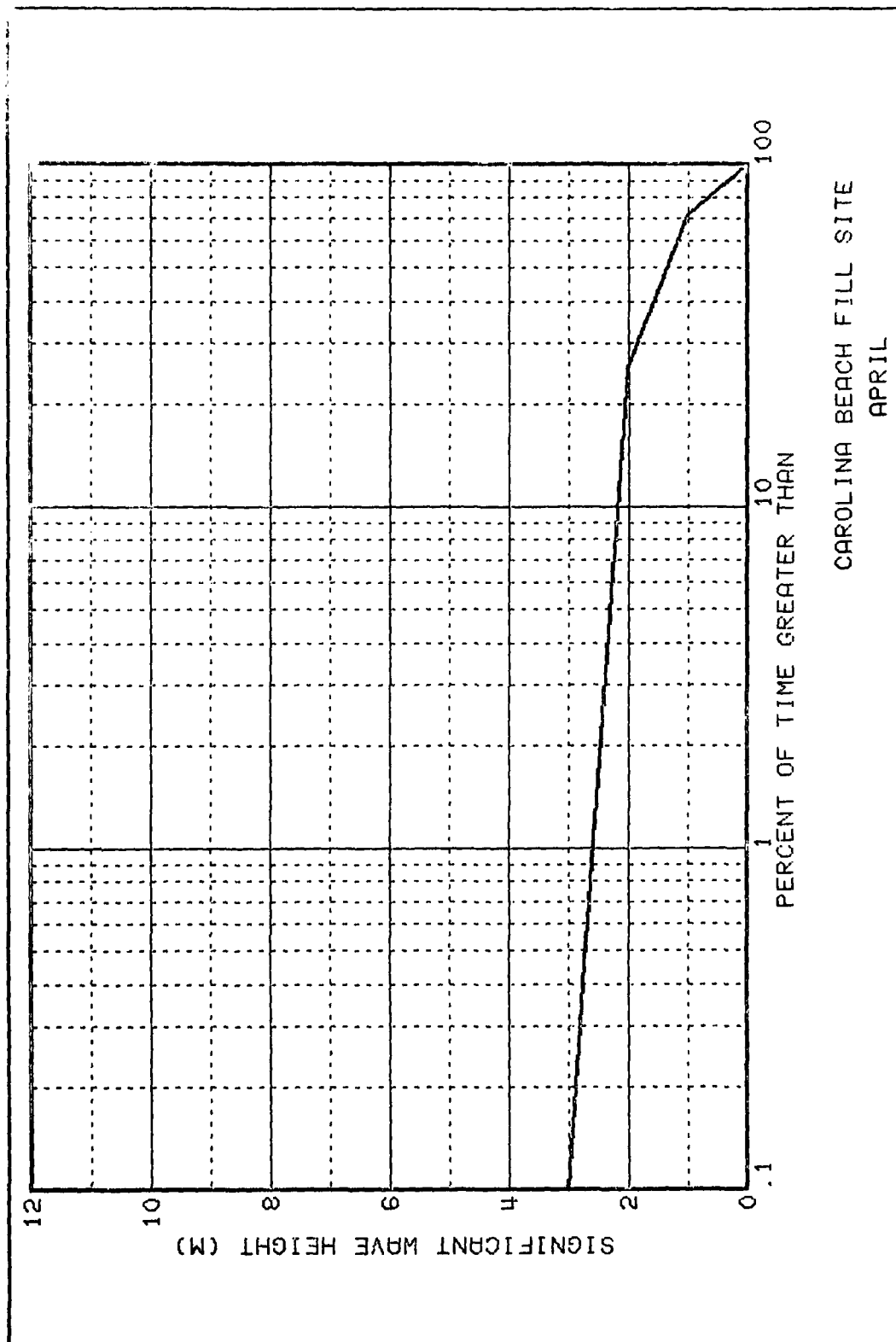
CAROLINA BEACH FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MARCH

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21	
00-01	21.33	4.02	0.58	0.23	0.05	0.00	0.00	0.02	0.09	0.29	26.62
01-02	29.56	9.40	3.13	0.53	0.22	0.01	0.01	0.04	0.04	0.09	43.03
02-03	8.85	8.92	7.42	3.42	0.85	0.50	0.14	0.15	0.02	0.07	20.35
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	59.75	22.24	11.15	9.17	1.10	0.51	0.15	0.20	0.15	0.45	



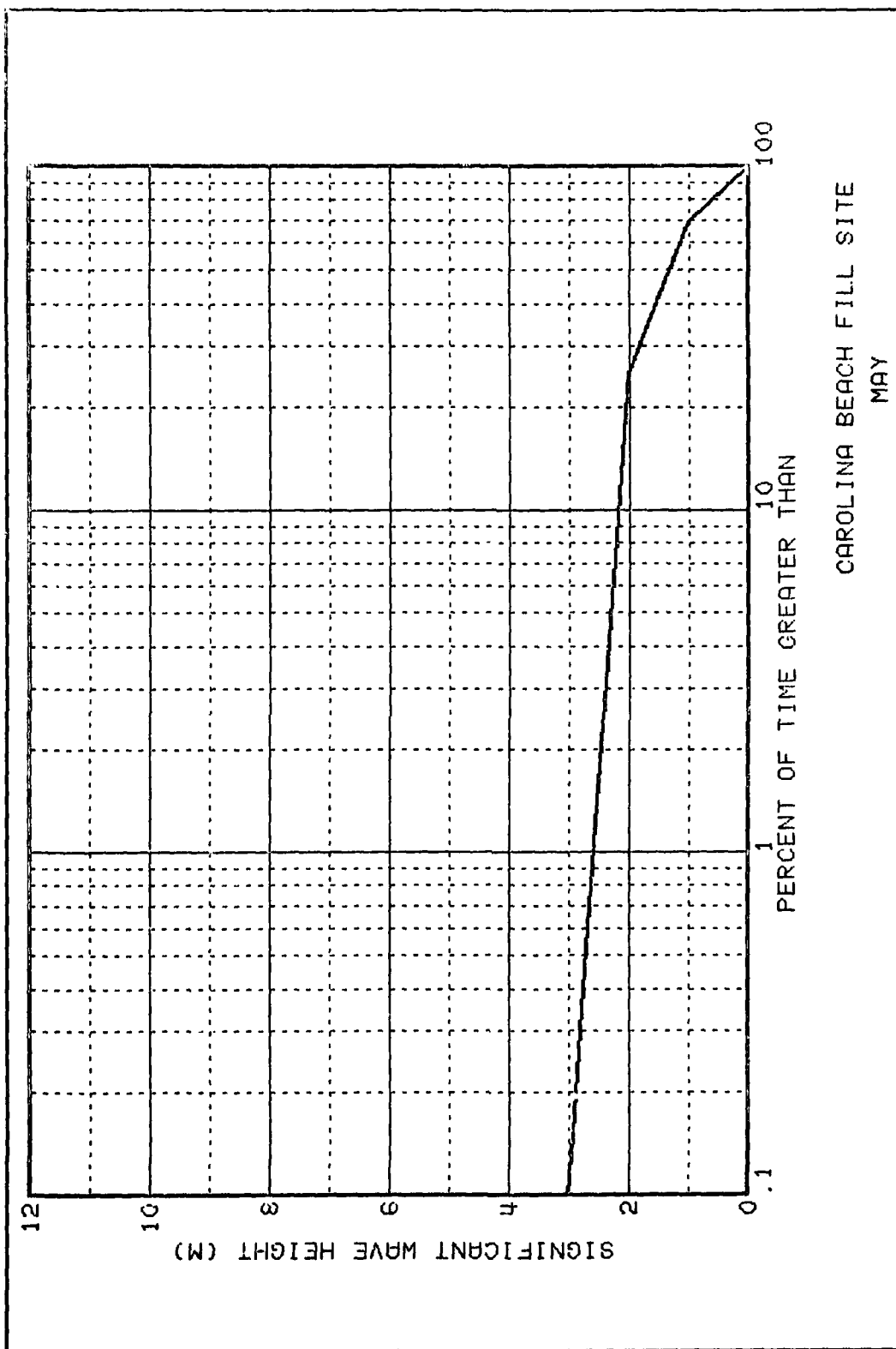
CAROLINA BEACH FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR APRIL

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21	
00-01	22.94	4.10	0.97	0.29	0.11	0.00	0.00	0.00	0.15	0.42	28.98
01-02	32.66	8.94	2.46	0.65	0.19	0.06	0.04	0.00	0.13	0.20	45.34
02-03	8.22	8.58	4.89	2.24	0.85	0.37	0.21	0.10	0.15	0.05	25.67
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	63.02	21.03	9.33	3.10	1.16	0.43	0.24	0.10	0.43	0.07	



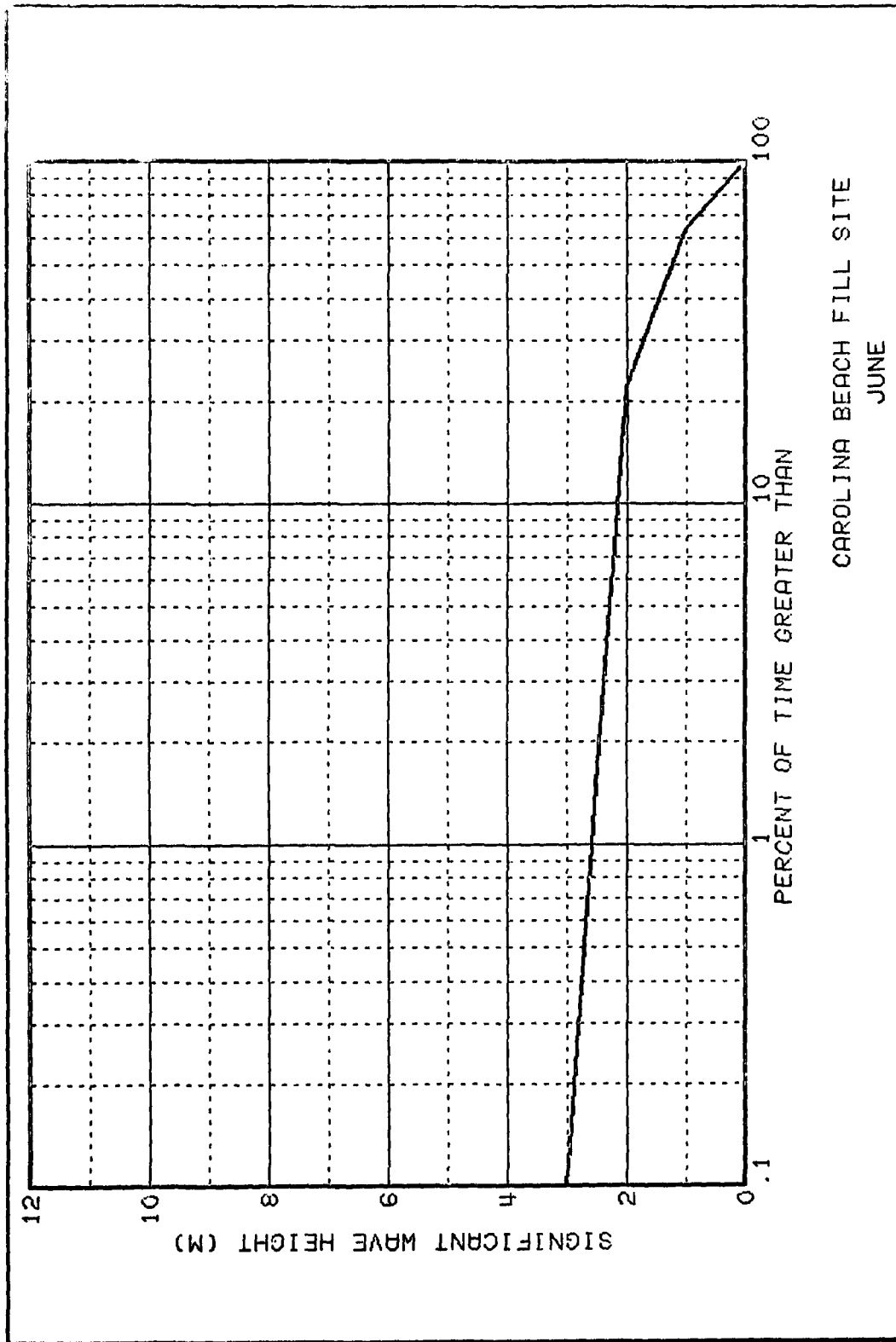
CAROLINA BEACH FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21	
00-01	24.51	4.83	0.94	0.20	0.16	0.04	0.00	0.02	0.04	0.24	30.98
01-02	31.99	8.63	2.57	0.38	0.19	0.05	0.00	0.03	0.06	0.12	44.02
02-03	7.24	8.64	5.38	2.32	0.52	0.64	0.04	0.00	0.11	0.11	25.02
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	63.75	22.10	9.80	2.60	0.67	0.73	0.04	0.04	0.22	0.47	



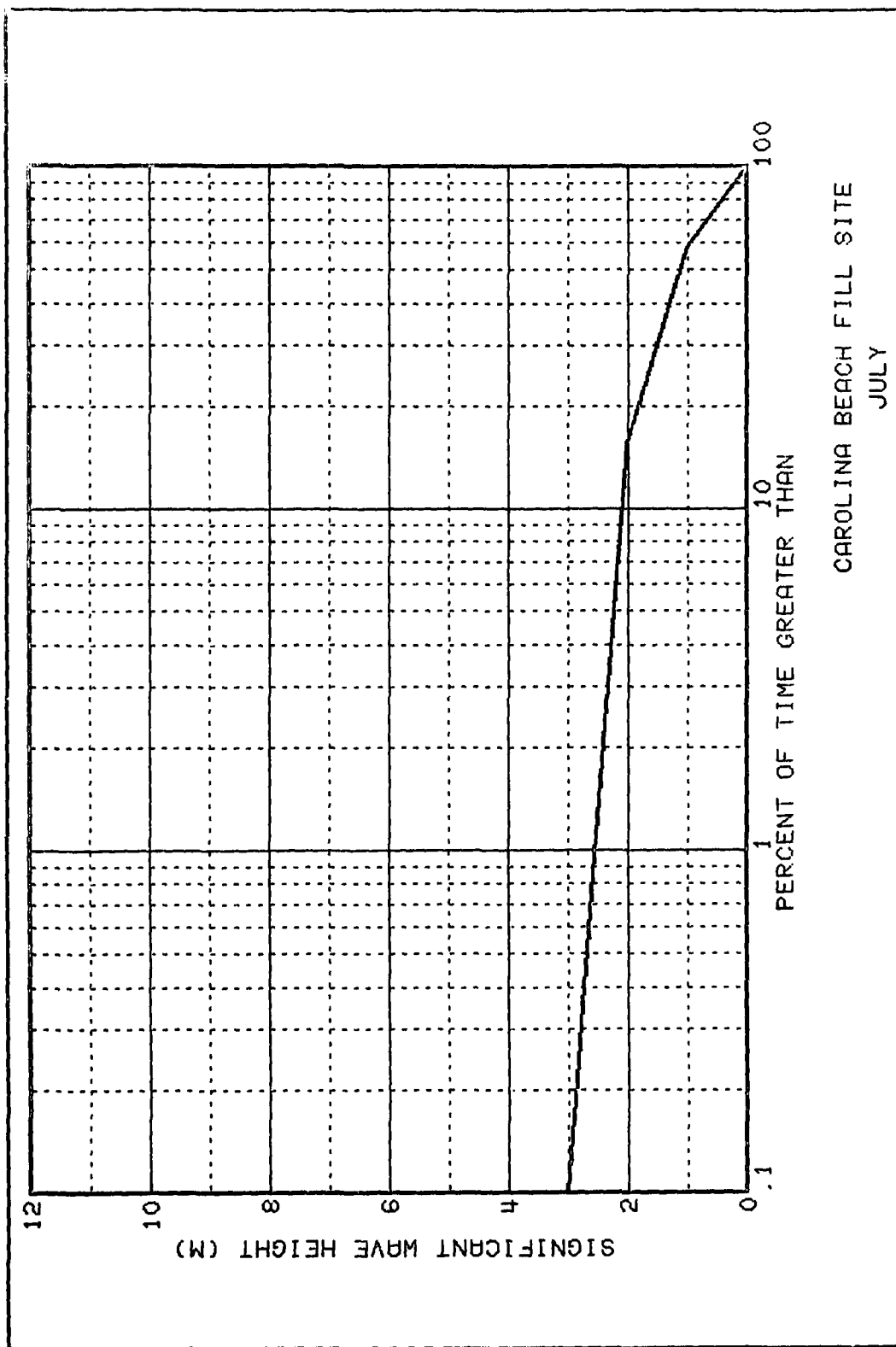
CAROLINA BEACH FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21	
00-01	29.35	4.86	0.65	0.20	0.10	0.00	0.00	0.00	0.23	0.65	36.04
01-02	29.88	8.62	2.41	0.46	0.18	0.04	0.00	0.01	0.11	0.30	42.01
02-03	5.25	8.07	4.98	2.22	0.74	0.47	0.04	0.04	0.08	0.07	21.96
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	64.48	21.55	2.04	2.88	1.02	0.51	0.04	0.04	0.42	1.02	



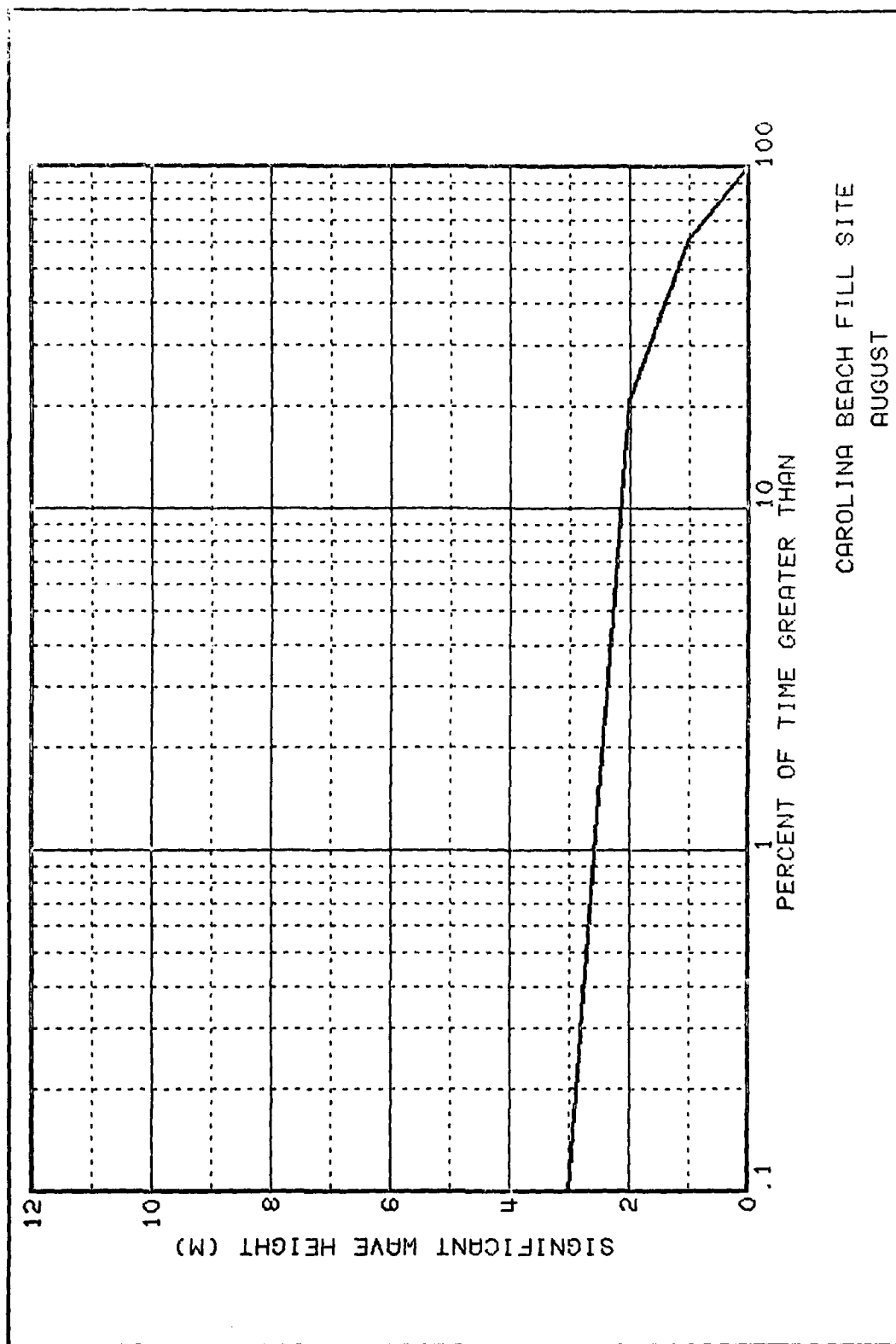
CAROLINA BEACH FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21	
00-01	33.32	4.90	1.81	0.31	0.27	0.04	0.07	0.00	0.48	0.71	41.90
01-02	30.55	8.24	2.42	0.37	0.18	0.06	0.05	0.00	0.24	0.37	42.48
02-03	3.37	7.21	2.49	1.29	0.53	0.25	0.00	0.06	0.15	0.25	15.62
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	67.24	29.35	6.72	1.97	0.99	0.35	0.12	0.06	0.67	1.33	



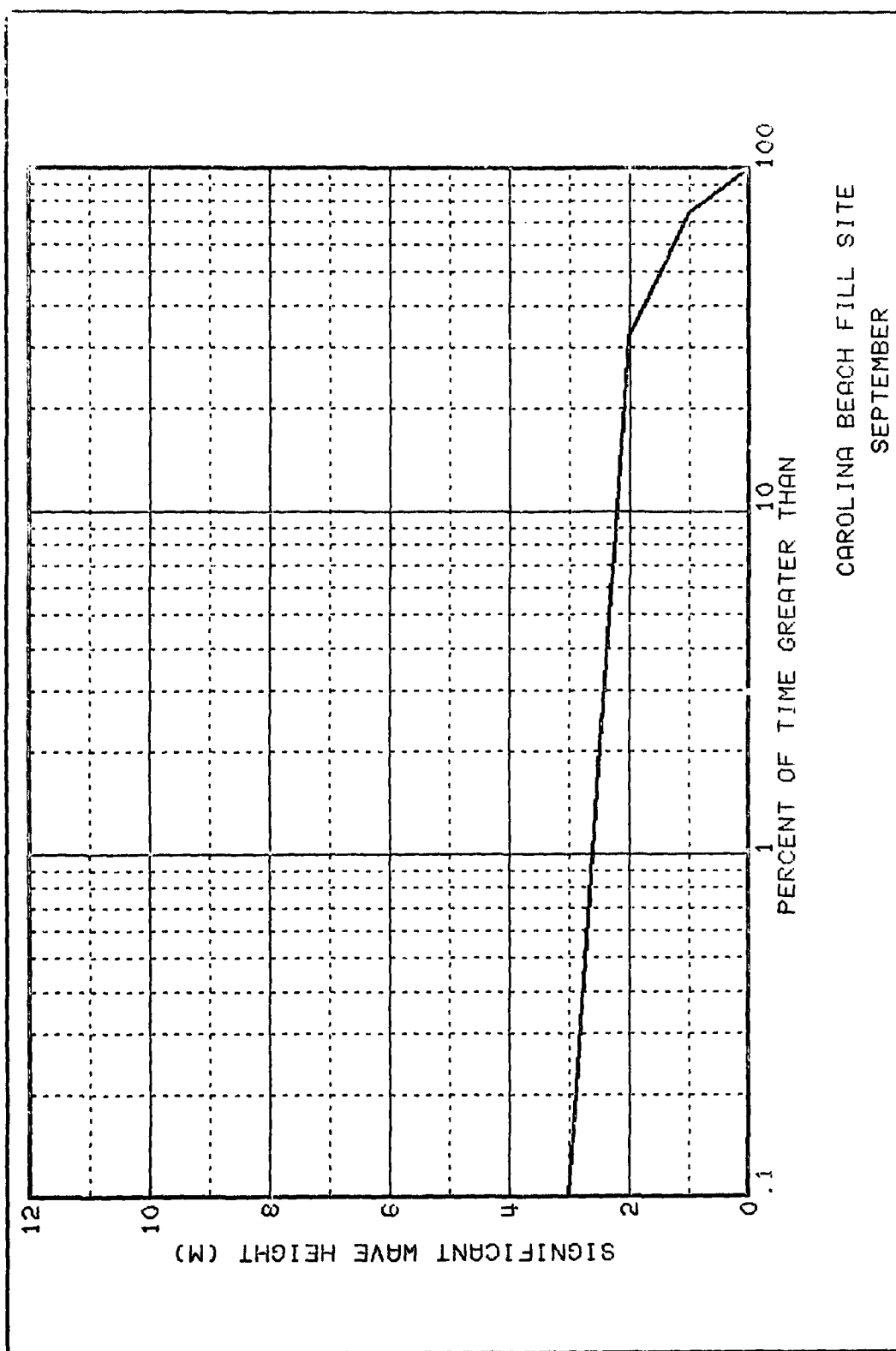
CAROLINA BEACH FILL SITE
CUMULATIVE SER / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21	
00-01	32.06	4.25	1.08	0.29	0.11	0.10	0.06	0.00	0.30	0.34	38.60
01-02	28.73	8.01	2.57	0.63	0.09	0.16	0.03	0.02	0.15	0.20	40.58
02-03	5.03	7.67	4.21	2.55	0.67	0.29	0.00	0.02	0.02	0.16	20.81
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	65.21	19.93	7.26	3.17	1.06	0.55	0.03	0.05	0.46	0.60	



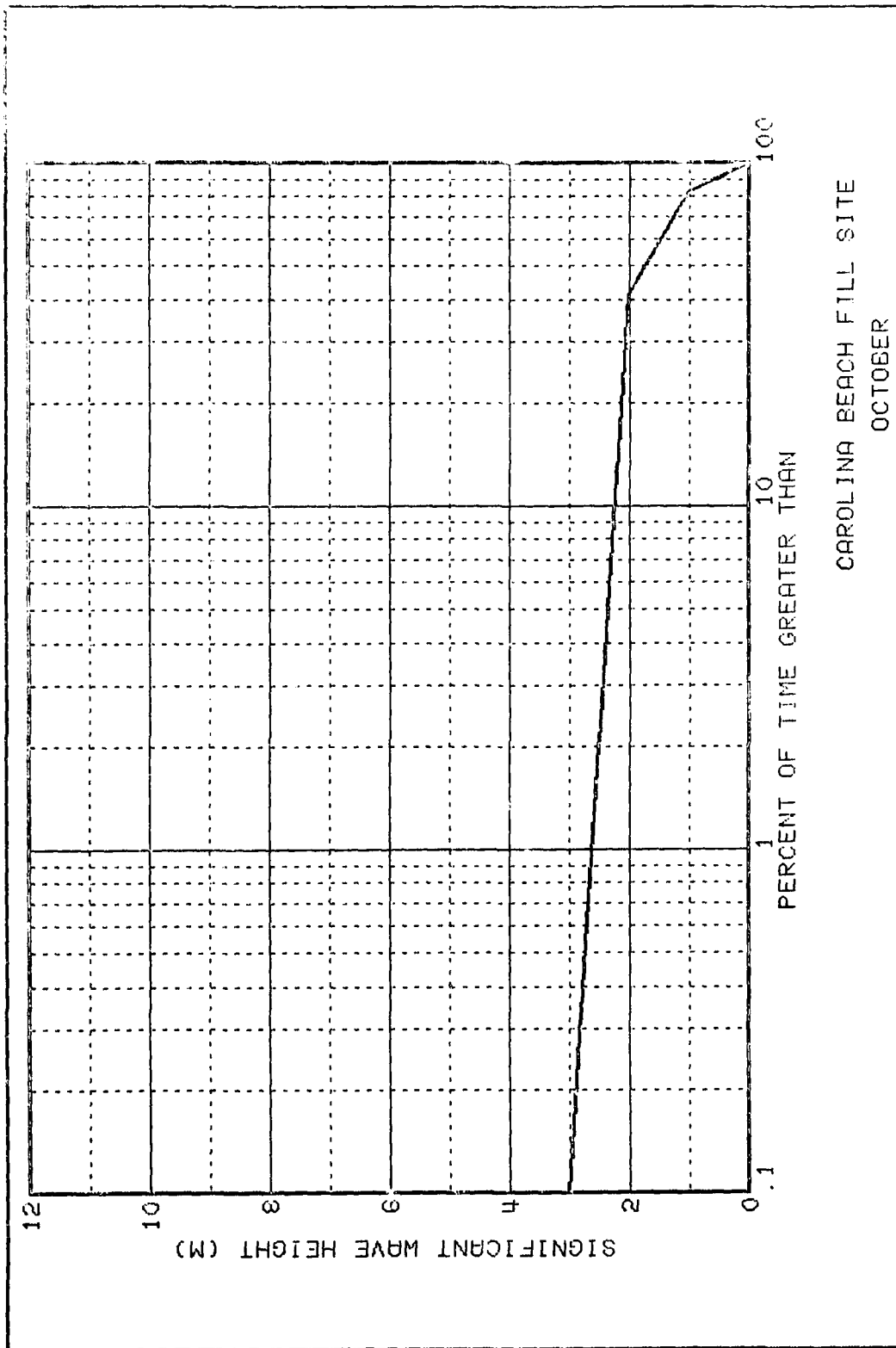
CAROLINA BEACH FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21	
00-01	22.02	2.29	0.70	0.09	0.16	0.02	0.00	0.03	0.16	0.20	25.67
01-02	28.68	9.88	2.12	0.82	0.21	0.09	0.03	0.03	0.12	0.13	42.10
02-03	6.60	11.79	7.89	3.28	1.57	0.84	0.16	0.00	0.10	0.08	22.21
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	57.30	23.97	10.70	9.20	1.94	0.75	0.19	0.06	0.39	0.41	



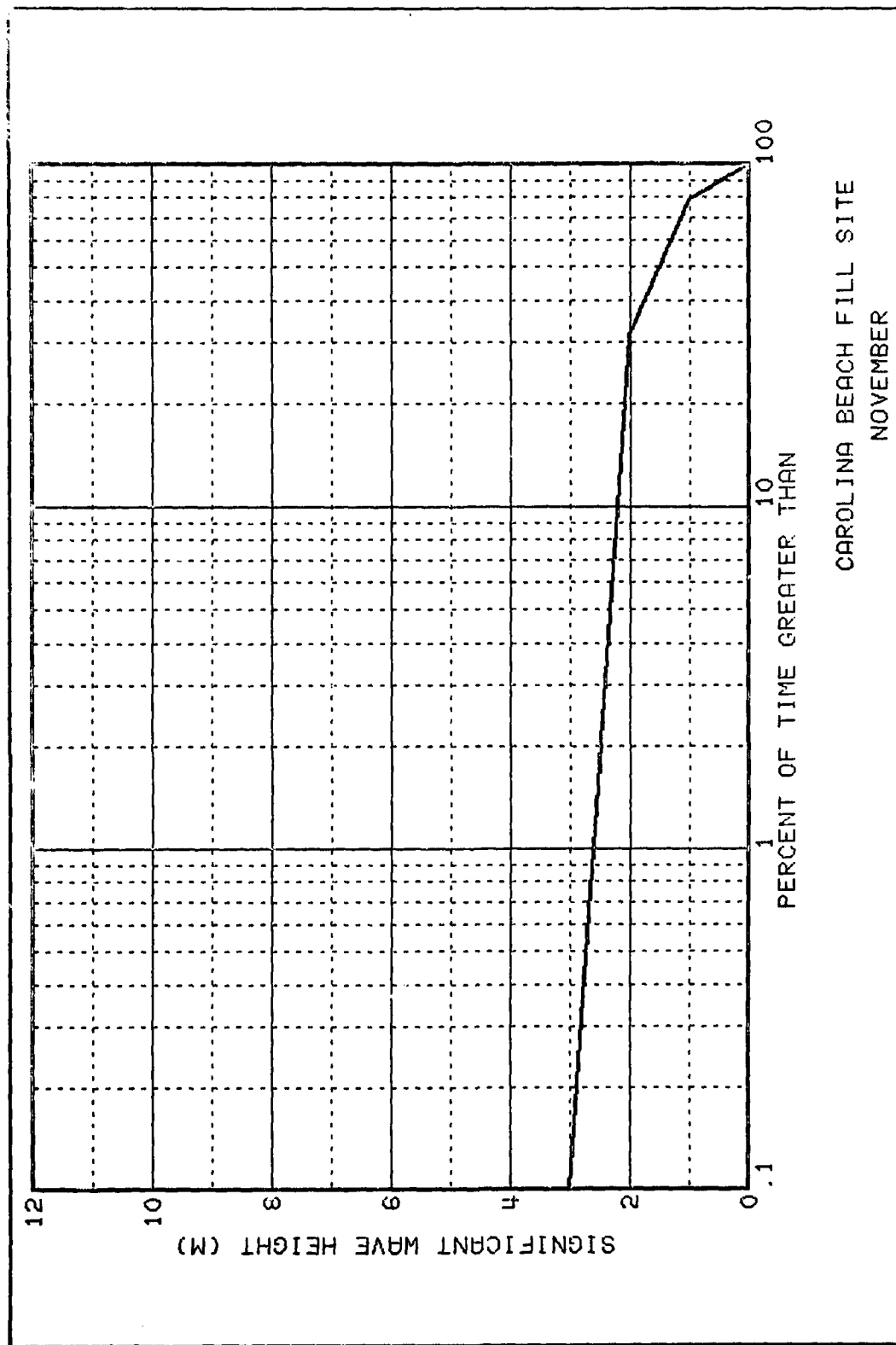
CAROLINA BEACH FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21		
00-01	14.22	2.03	0.37	0.07	0.03	0.00	0.00	0.00	0.02	0.20		16.94
01-02	28.25	10.04	2.39	0.68	0.02	0.03	0.00	0.00	0.02	0.04		41.53
02-03	12.63	11.90	8.95	4.75	1.93	1.02	0.13	0.10	0.06	0.00		41.53
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	55.10	23.93	11.70	5.50	2.04	1.11	0.13	0.10	0.10	0.23		



CAROLINA BEACH FILL SITE
CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER

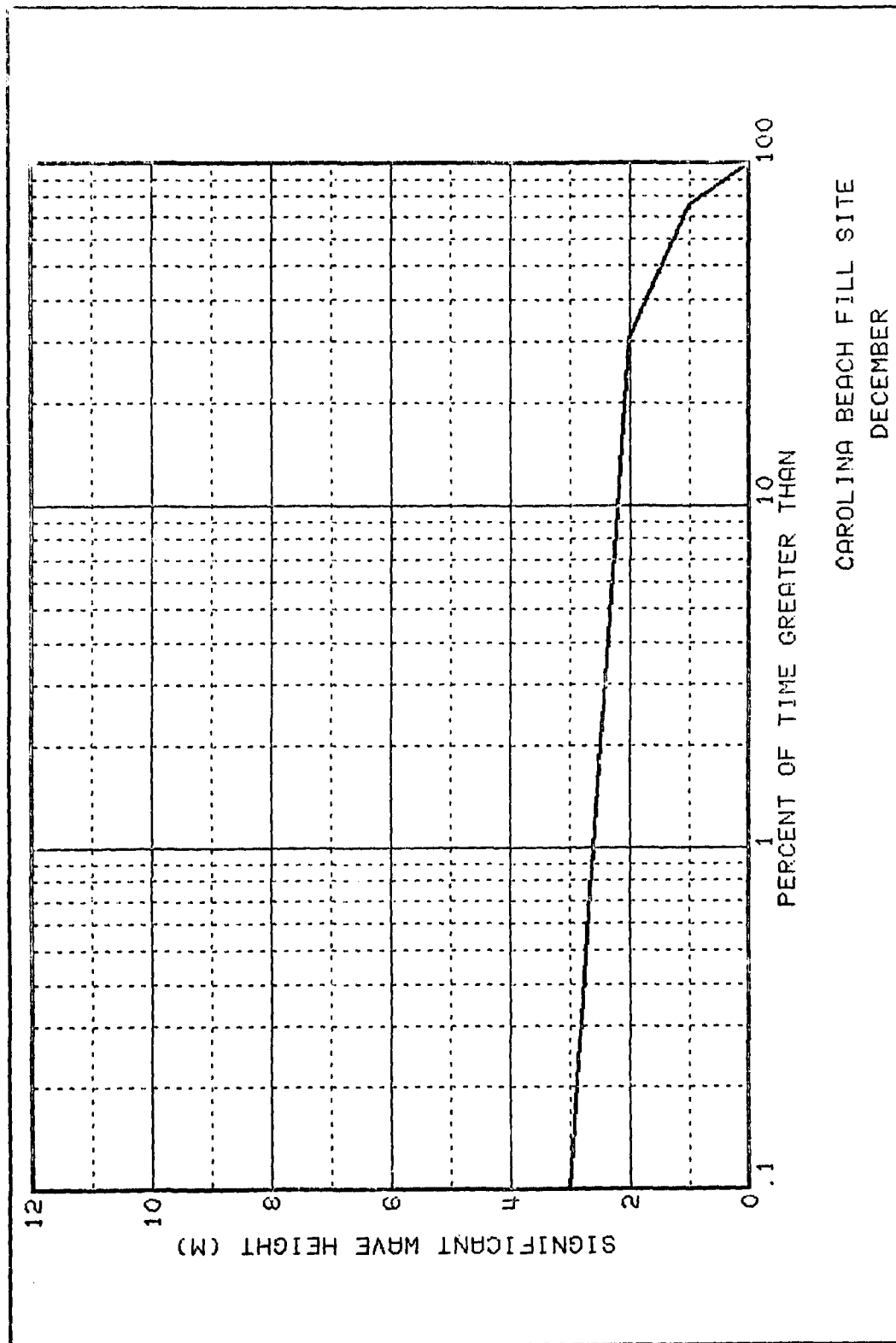
HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21	
00-01	17.52	3.12	0.43	0.26	0.00	0.00	0.04	0.00	0.13	0.26	21.76
01-02	31.19	11.22	3.43	0.68	0.07	0.01	0.01	0.00	0.06	0.12	46.79
02-03	9.05	10.11	6.68	2.97	1.09	0.96	0.34	0.05	0.19	0.05	31.48
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	57.75	24.45	10.54	3.00	1.16	0.97	0.30	0.05	0.29	0.00	



CAROLINA BEACH FILL SITE

CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21	TOTAL
00-01	19.48	3.62	0.31	0.13	0.05	0.00	0.00	0.04	0.07	0.47	24.77
01-02	28.63	10.25	3.79	1.24	0.24	0.10	0.00	0.03	0.05	0.26	44.59
02-03	8.27	9.61	6.81	3.74	1.41	0.34	0.12	0.13	0.13	0.09	30.60
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	55.39	23.47	11.52	5.10	1.70	0.44	0.12	0.19	0.25	0.00	



CAROLINA BEACH FILL SITE
 CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 30

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21	
00-01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01-02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02-03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

CAROLINA BEACH FILL SITE
CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 60

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21		
00-01	7.39	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03		8.24
01-02	12.96	2.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01		15.26
02-03	3.83	1.08	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01		4.99
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	24.25	4.16	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05		

CAROLINA BEACH FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 80

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21		
00-01	3.93	0.44	0.29	0.07	0.03	0.00	0.01	0.00	0.06	0.15	4.99	
01-02	5.78	4.30	1.74	0.36	0.08	0.03	0.01	0.01	0.05	0.08	12.44	
02-03	1.28	6.18	5.14	2.56	0.96	0.44	0.10	0.04	0.06	0.04	16.81	
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	10.99	10.92	7.18	2.09	1.00	0.47	0.12	0.05	0.17	0.07		

CAROLINA BEACH FILL SITE
CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 120

HEIGHT (M)	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21	TOTAL
00-01	4.86	0.35	0.08	0.01	0.02	0.00	0.00	0.00	0.02	0.06	5.41
01-02	6.24	1.84	0.37	0.06	0.05	0.02	0.00	0.00	0.02	0.05	8.77
02-03	2.03	2.15	1.22	0.52	0.20	0.13	0.02	0.02	0.02	0.04	6.35
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	13.24	4.24	1.37	0.61	0.26	0.15	0.03	0.02	0.06	0.15	

CAROLINA BEACH FILL SITE
 CUMULATIVE SEA / SUELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 150

HEIGHT (M)	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21	TOTAL
00-01	5.96	2.05	0.43	0.11	0.04	0.02	0.00	0.00	0.06	0.10	6.77
01-02	5.03	0.92	0.63	0.23	0.06	0.01	0.00	0.00	0.02	0.02	6.93
02-03	0.80	0.04	0.05	0.06	0.04	0.02	0.00	0.00	0.00	0.00	1.01
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10-11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	11.87	3.01	1.12	0.37	0.14	0.03	0.00	0.01	0.07	0.10	

CAROLINA BEACH FILL SITE
 CUMULATIVE SEA / SHELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 180

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	>21	
00-01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01-02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02-03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

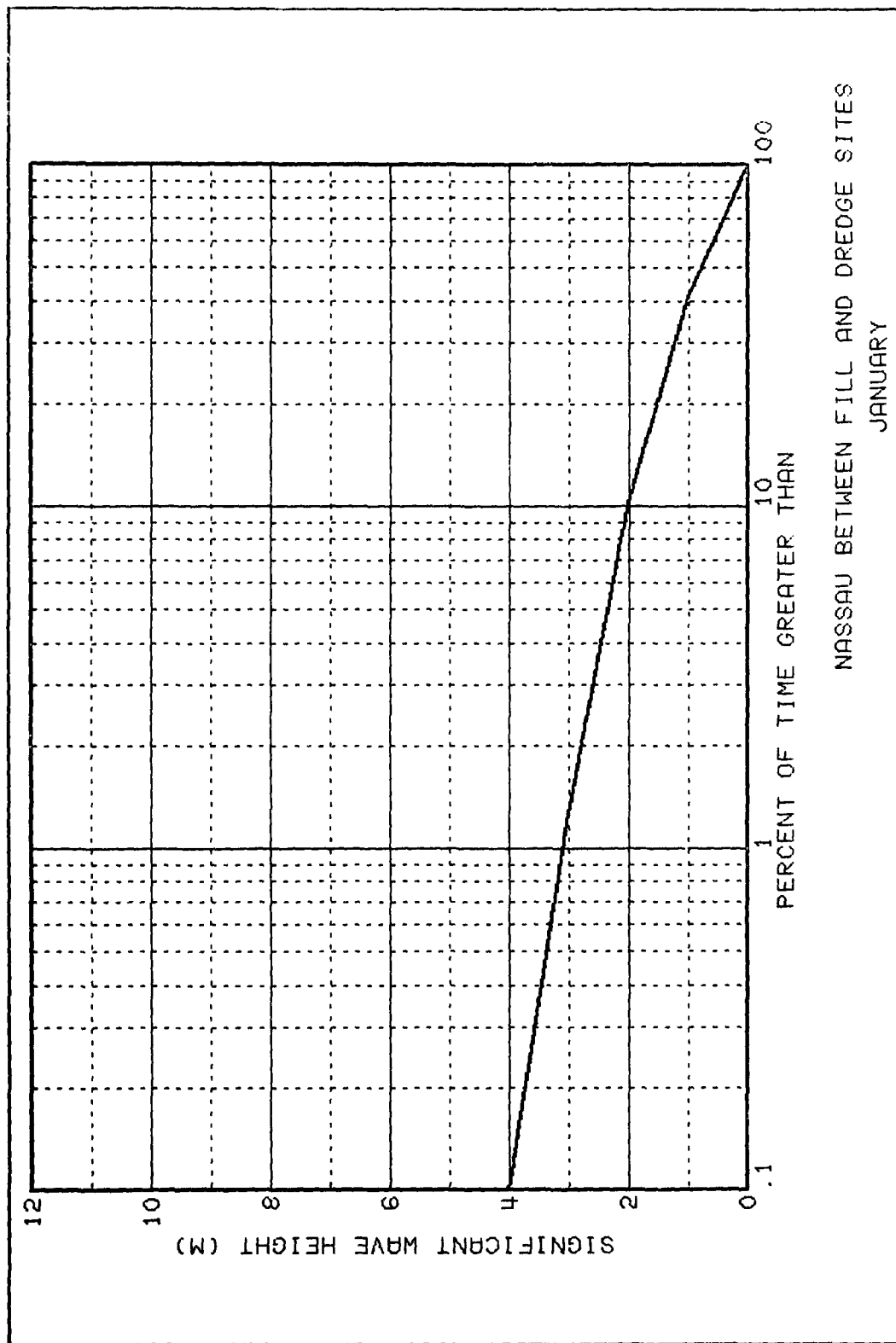
APPENDIX E: AVERAGE WAVE CLIMATE AT NASSAU COUNTY, FLA.

1. Appendix E contains the following information for the Nassau County, Fla., project site:

- a. Tabulations of monthly percent occurrence of wave-height/period combinations.
- b. Tabulations of annual percent occurrence by azimuth direction of wave-height/period combinations.
- c. Plots of monthly significant wave-height occurrence in terms of the total percent time per month that these heights are exceeded.

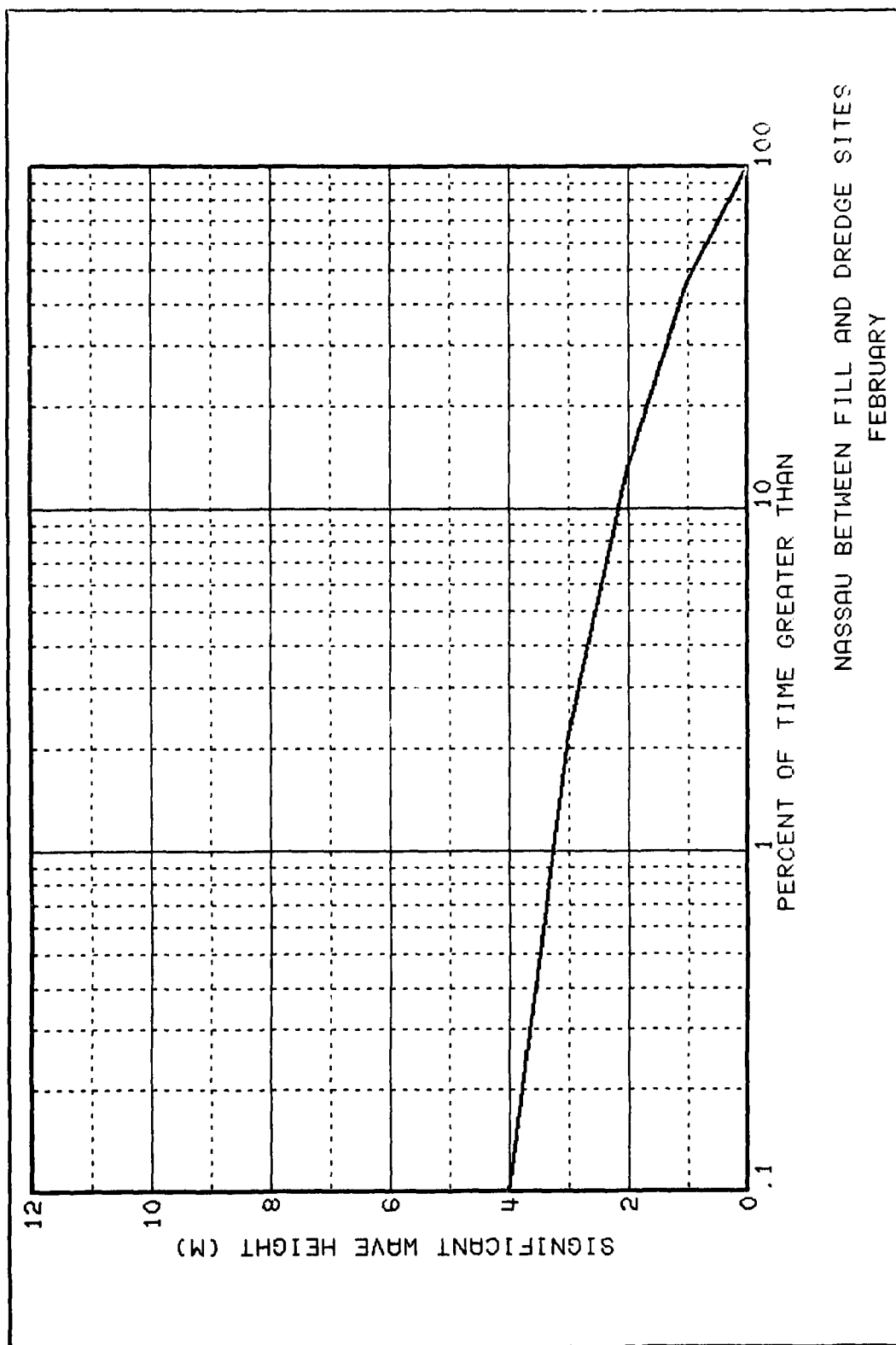
NPSSAU BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JANUARY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	43.46	10.22	3.08	0.94	0.11	0.32	0.30	0.00	0.09	0.29	58.82
01-02	19.07	7.14	2.41	1.06	0.68	0.29	0.00	0.00	0.01	0.21	30.87
02-03	6.27	1.69	0.43	0.39	0.17	0.08	0.00	0.00	0.00	0.00	9.04
03-04	0.82	0.17	0.05	0.00	0.13	0.10	0.00	0.00	0.00	0.00	1.28
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	69.62	19.22	5.98	2.39	1.10	0.80	0.30	0.00	0.10	0.50	



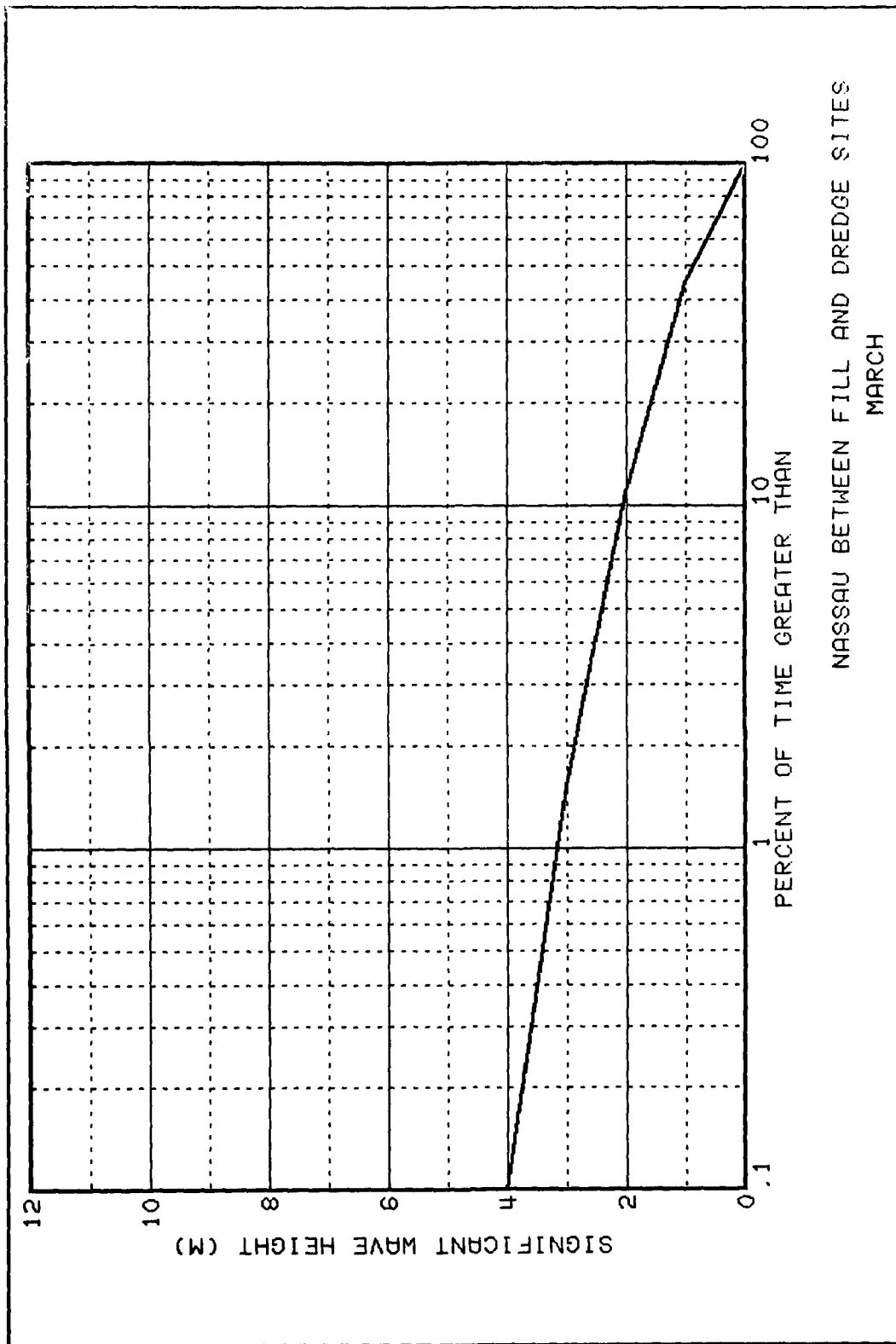
NASSAU BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	37.60	9.07	4.74	1.08	0.57	0.07	0.13	0.00	0.00	0.50	53.76
01-02	17.65	8.53	3.91	1.53	0.89	0.42	0.00	0.00	0.00	0.03	33.03
02-03	6.79	2.64	0.81	0.47	0.00	0.20	0.00	0.11	0.00	0.00	11.02
03-04	1.53	0.21	0.07	0.10	0.13	0.10	0.00	0.02	0.00	0.00	2.17
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	63.57	20.53	9.53	3.16	1.53	0.79	0.13	0.13	0.00	0.53	



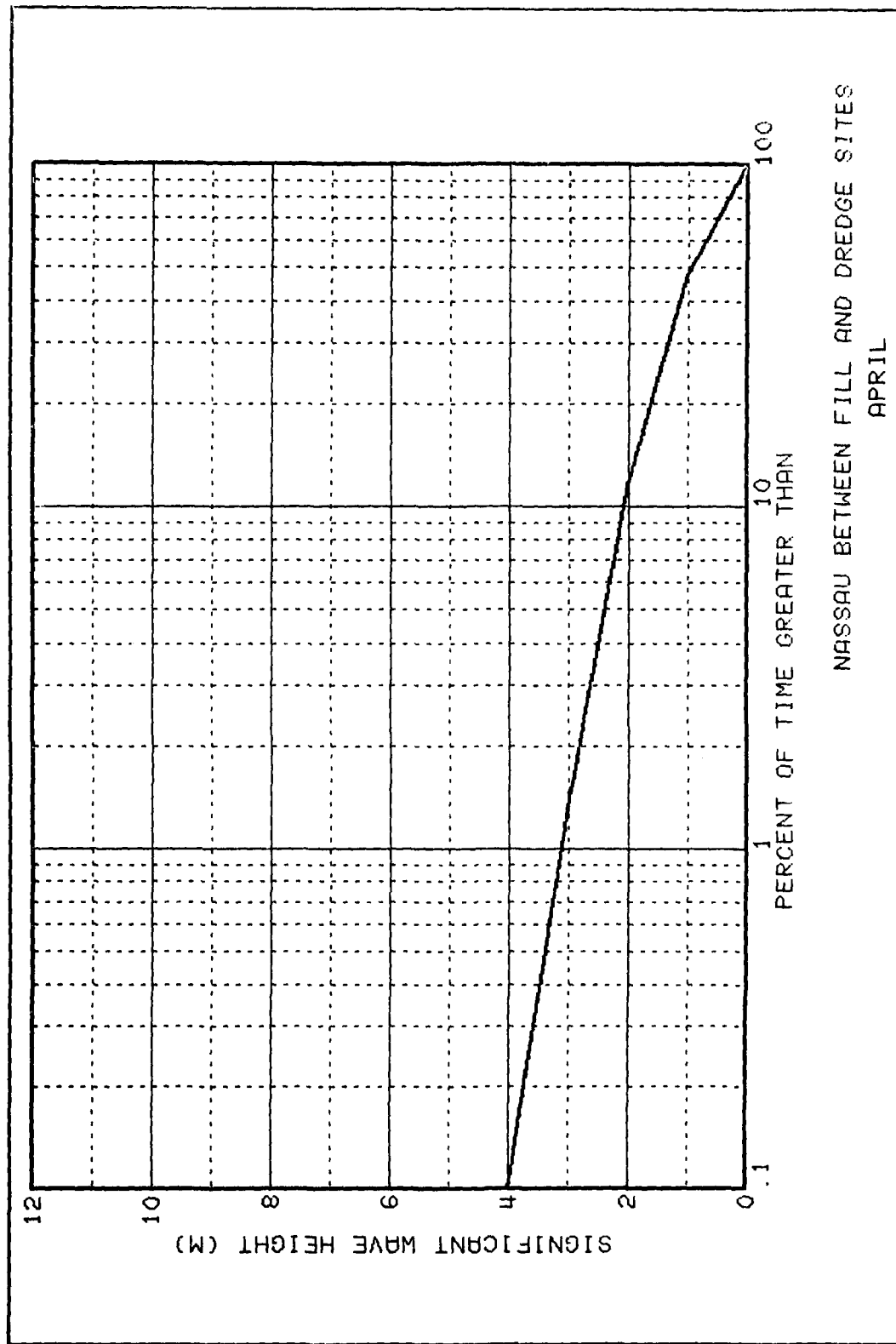
NASSAU BETWEEN FILL AND DREDGE SITES
CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MARCH

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	42.69	6.92	3.21	0.89	0.64	0.00	0.10	0.00	0.19	0.87	55.50
01-02	23.14	7.31	2.26	0.75	0.05	0.00	0.00	0.00	0.01	0.02	33.55
02-03	7.97	0.77	0.42	0.17	0.00	0.09	0.00	0.00	0.00	0.00	9.42
03-04	1.13	0.17	0.05	0.07	0.00	0.10	0.00	0.00	0.00	0.00	1.53
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	74.92	15.16	5.94	1.00	0.69	0.29	0.10	0.00	0.20	0.89	



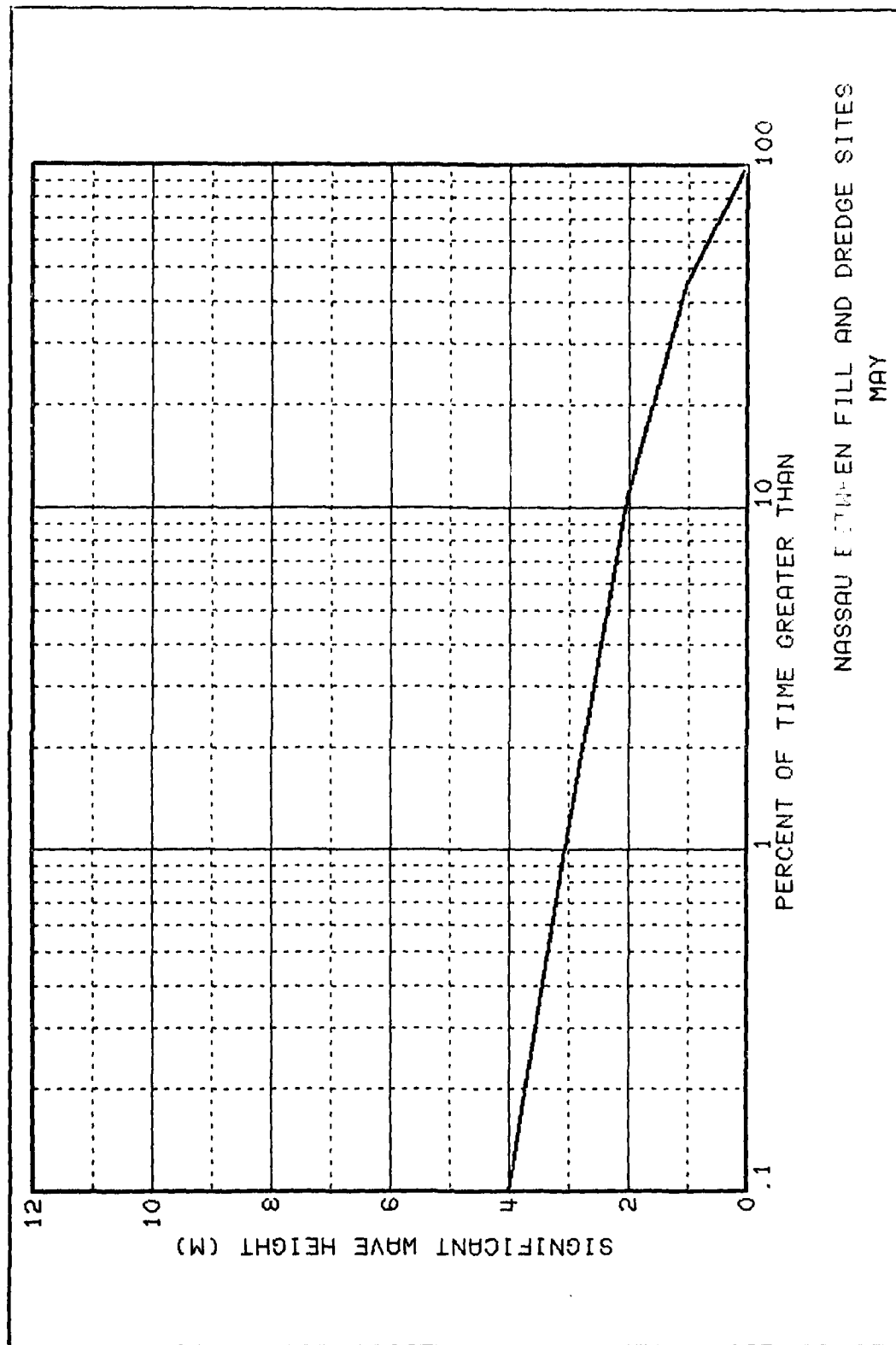
NASSAU BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR APRIL

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	38.77	8.79	2.27	0.75	0.13	0.09	0.01	0.09	0.35	1.02	52.27
01-02	26.20	6.77	1.74	0.70	0.33	0.00	0.09	0.00	0.12	0.20	36.14
02-03	8.64	0.92	0.24	0.35	0.10	0.00	0.00	0.00	0.00	0.00	10.26
03-04	1.02	0.09	0.15	0.07	0.00	0.00	0.00	0.00	0.00	0.00	1.32
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	74.62	16.57	4.43	1.87	0.56	0.09	0.09	0.09	0.47	1.22	



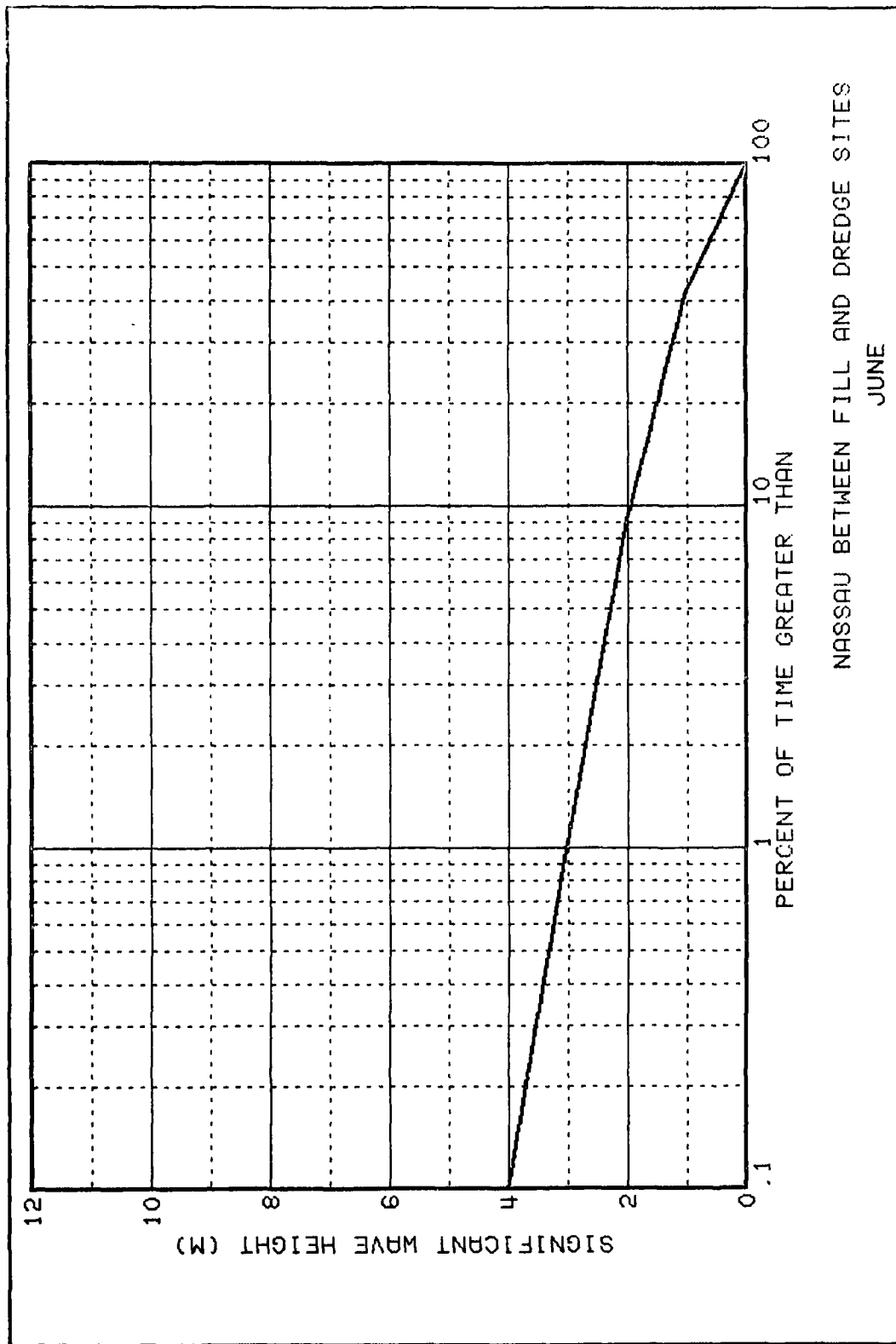
NASSAU BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	39.91	7.45	3.94	1.52	0.22	0.23	0.10	0.00	0.18	0.65		54.20
01-02	25.44	6.08	1.89	0.63	0.27	0.23	0.00	0.00	0.02	0.15		34.72
02-03	8.37	0.68	0.54	0.33	0.00	0.03	0.00	0.00	0.00	0.00		9.94
03-04	0.94	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00		1.14
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	74.65	14.21	6.36	2.40	0.50	0.70	0.10	0.00	0.20	0.79		



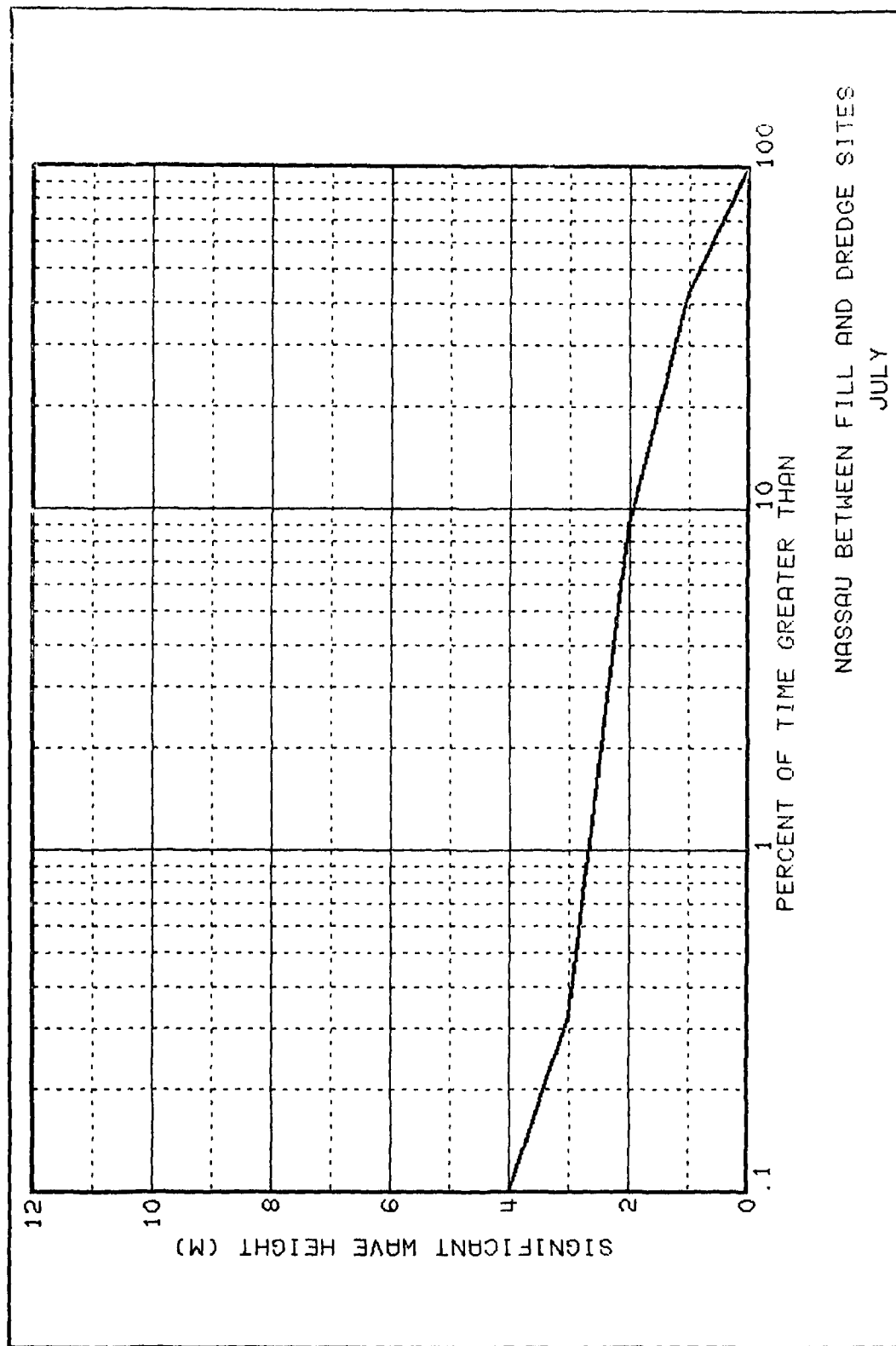
NASSAU BETWEEN FILL AND DREDGE SITES
CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	43.79	8.42	2.83	0.60	0.08	0.09	0.09	0.00	0.26	1.27	57.43	
01-02	24.46	7.12	0.92	0.45	0.19	0.17	0.00	0.00	0.02	0.09	33.43	
02-03	7.38	0.47	0.06	0.04	0.09	0.04	0.00	0.00	0.00	0.00	8.09	
03-04	0.75	0.15	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	1.04	
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	75.38	16.17	3.81	1.09	0.36	0.45	0.09	0.00	0.27	1.36		



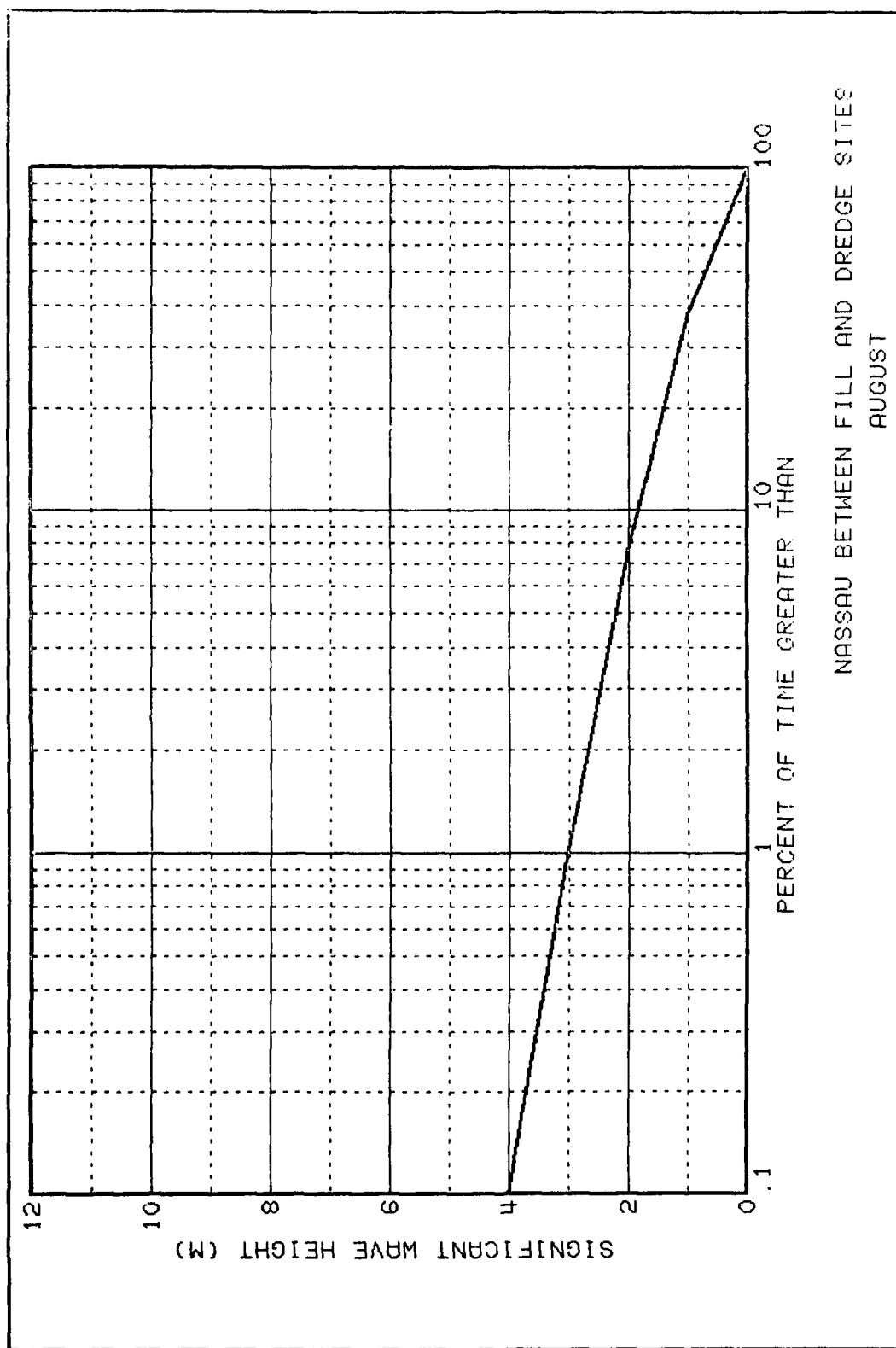
NASSAU BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	46.42	6.71	1.63	0.90	0.14	0.08	0.00	0.00	0.00	1.35	57.24	
01-02	24.61	7.56	0.65	0.25	0.00	0.06	0.00	0.25	0.00	0.38	33.74	
02-03	8.19	0.29	0.17	0.00	0.00	0.00	0.00	0.04	0.00	0.00	8.68	
03-04	0.18	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.33	
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	79.40	14.55	2.45	1.15	0.14	0.29	0.00	0.29	0.00	1.73		



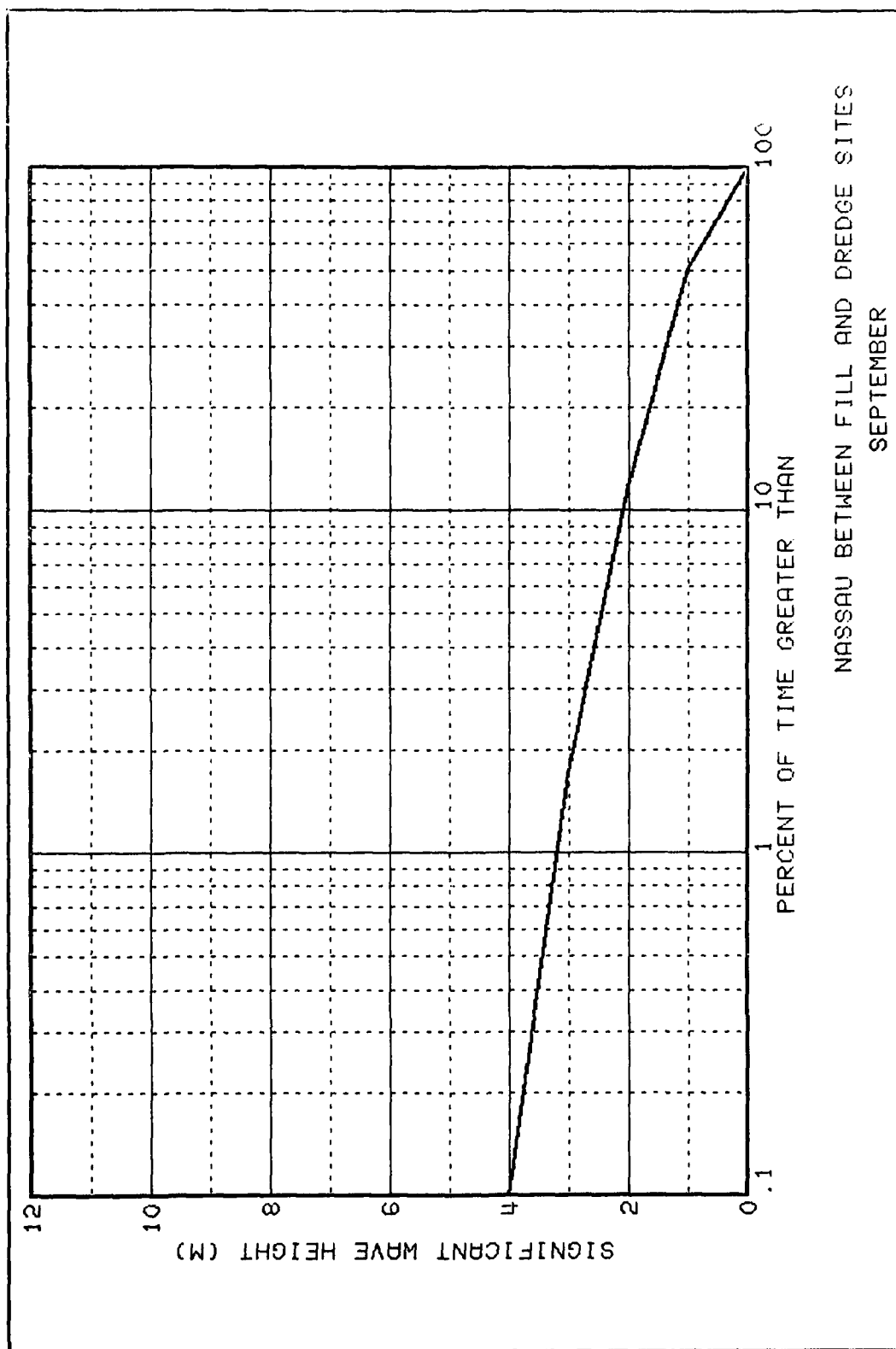
NASSAU BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	45.67	9.60	4.44	1.06	0.56	0.23	0.01	0.00	0.00	1.04	62.61
01-02	19.50	6.05	2.17	1.03	0.24	0.44	0.09	0.00	0.00	0.27	29.80
02-03	5.69	0.38	0.25	0.08	0.07	0.09	0.00	0.00	0.00	0.00	6.56
03-04	0.82	0.09	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	1.02
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	71.68	16.12	6.86	2.18	0.97	0.76	0.22	0.00	0.00	1.31	



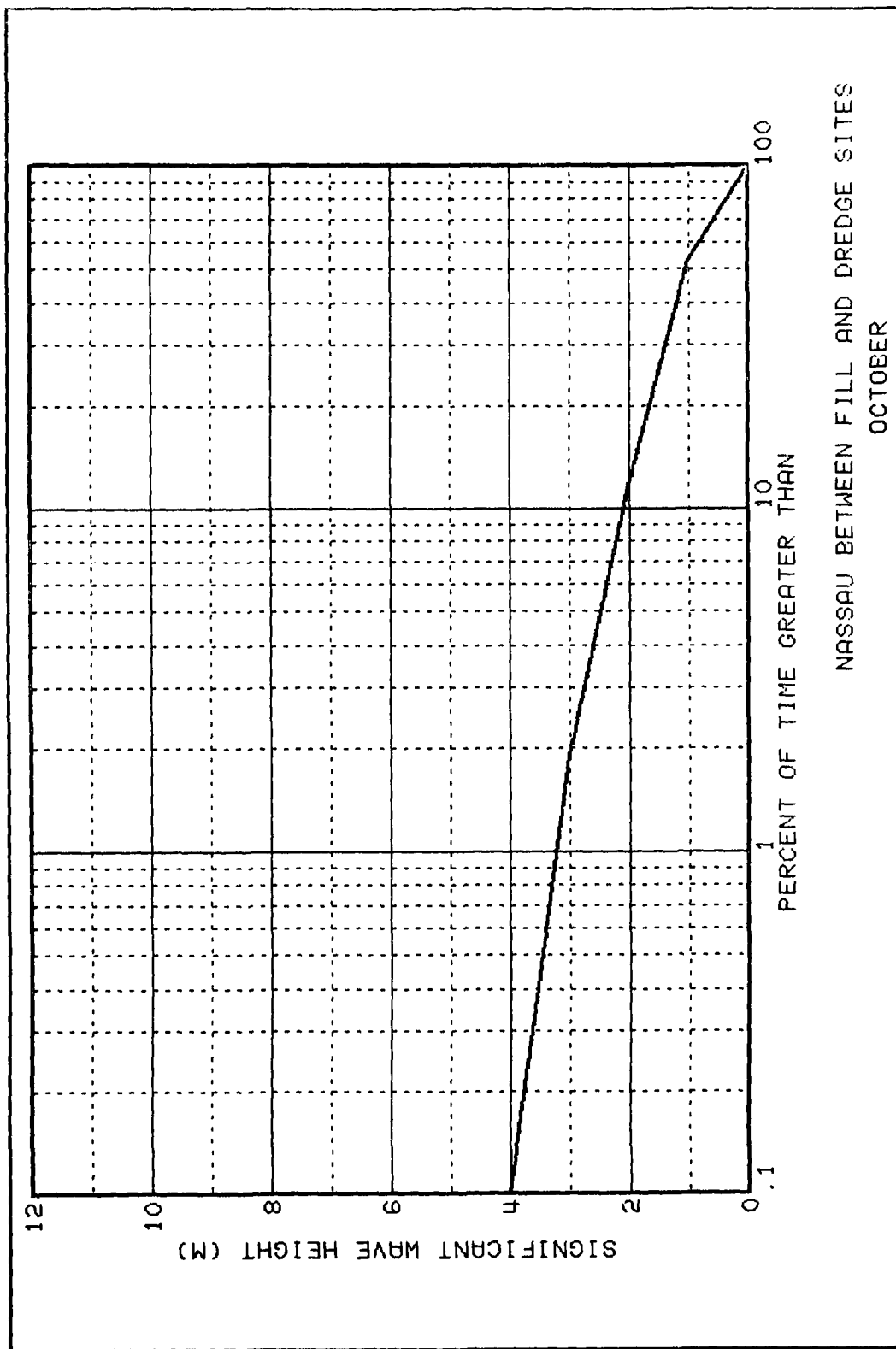
NASSAU BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	32.75	9.29	4.68	0.91	0.04	0.11	0.16	0.00	0.53	0.78	49.25
01-02	21.89	9.62	3.79	2.20	0.64	0.59	0.02	0.00	0.02	0.09	38.95
02-03	6.02	2.40	0.26	0.59	0.42	0.34	0.06	0.00	0.00	0.00	10.08
03-04	0.99	0.27	0.09	0.07	0.00	0.30	0.00	0.00	0.00	0.00	1.71
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	61.65	21.57	8.92	3.66	1.10	1.34	0.24	0.00	0.55	0.87	



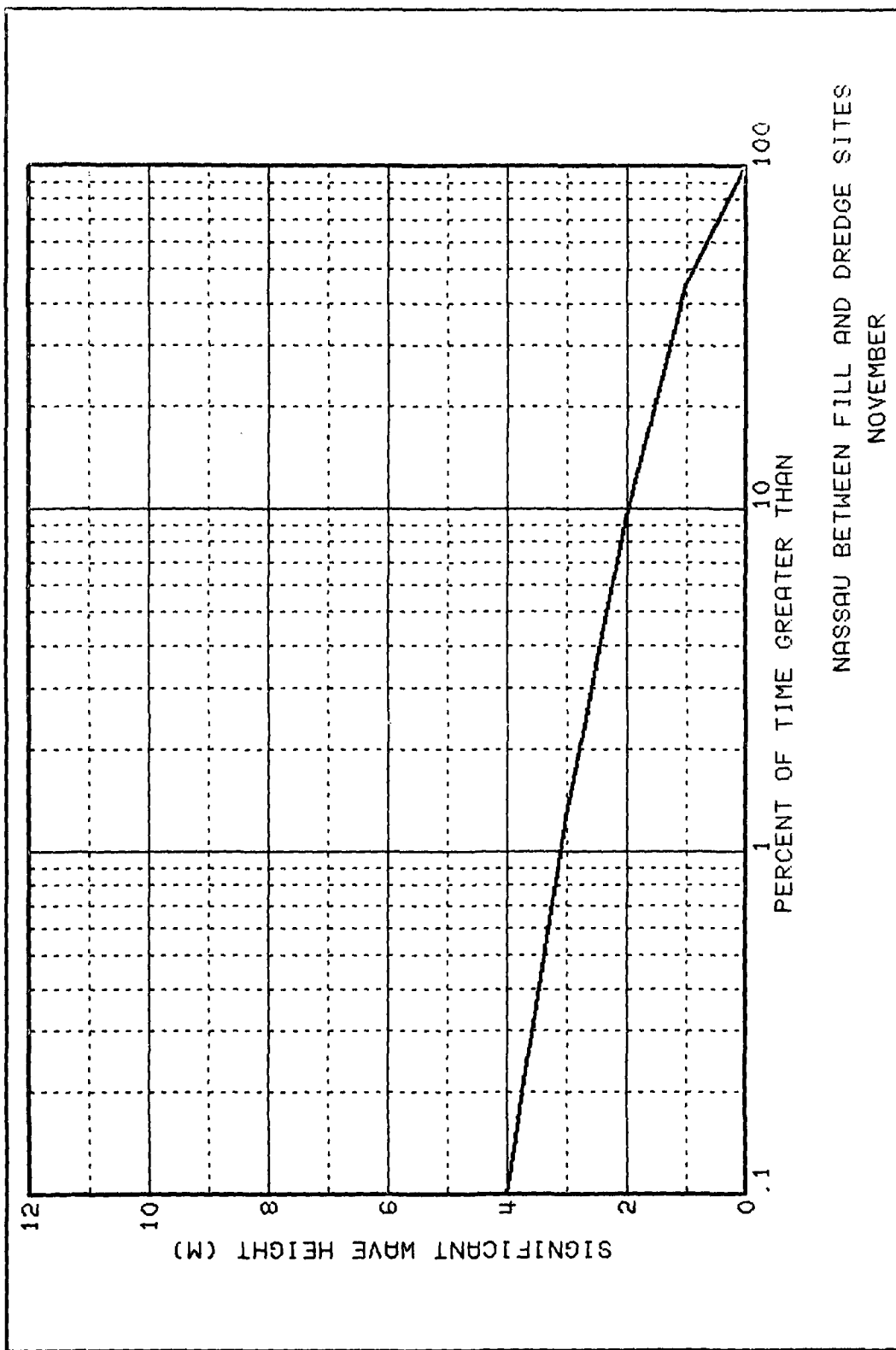
NASSAU BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	27.60	10.40	8.86	1.00	0.28	0.04	0.00	0.00	0.00	0.63	46.81
01-02	19.02	11.91	6.01	3.32	0.64	0.41	0.00	0.00	0.00	0.10	41.41
02-03	5.28	2.58	0.46	1.03	0.39	0.06	0.07	0.00	0.00	0.00	9.88
03-04	1.24	0.24	0.01	0.19	0.22	0.00	0.00	0.00	0.00	0.00	1.90
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	53.13	25.14	13.34	5.54	1.53	0.51	0.07	0.00	0.00	0.73	



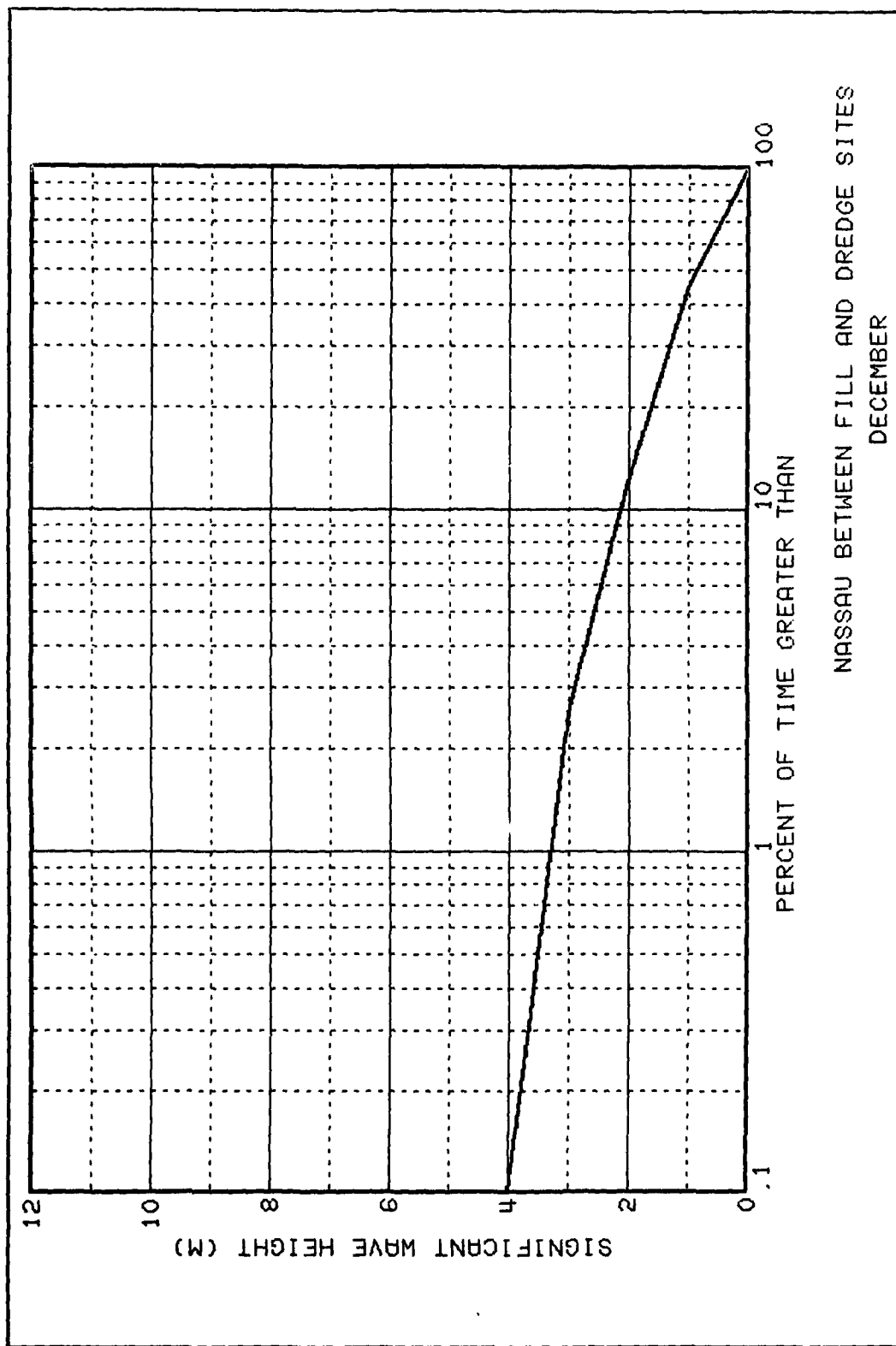
NASSAU BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	37.27	10.65	4.94	1.80	0.09	0.02	0.00	0.00	0.00	0.34		55.11
01-02	19.21	9.50	4.48	1.39	0.38	0.24	0.01	0.00	0.00	0.15		35.36
02-03	5.23	1.50	0.42	0.61	0.28	0.15	0.08	0.00	0.00	0.00		8.25
03-04	0.85	0.25	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00		1.27
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	62.56	21.90	3.83	3.96	0.74	0.41	0.08	0.00	0.00	0.50		



NASSAU BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	39.20	9.85	4.10	0.79	0.55	0.19	0.22	0.00	0.00	0.62	55.52
01-02	19.31	8.26	3.41	1.16	0.00	0.14	0.00	0.00	0.00	0.04	32.33
02-03	7.53	0.82	0.44	0.25	0.52	0.05	0.00	0.00	0.00	0.00	9.60
03-04	1.40	0.49	0.00	0.22	0.25	0.18	0.00	0.00	0.00	0.00	2.54
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	67.44	19.42	7.95	2.43	1.32	0.55	0.22	0.00	0.00	0.66	



NASSAU BETWEEN FILL AND DREDGE SITES
 CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 0

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01-02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02-03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

NASSAU BETWEEN FILL AND DREDGE SITES
 CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 30

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	9.05	2.12	0.58	0.18	0.03	0.01	0.00	0.00	0.00	0.00	11.97
01-02	0.05	0.14	0.41	0.29	0.05	0.02	0.00	0.00	0.00	0.00	0.95
02-03	0.00	0.00	0.05	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.14
03-04	0.00	0.00	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.04
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	9.10	2.26	1.04	0.53	0.14	0.03	0.00	0.00	0.00	0.00	

NASSAU BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD

WAVE DIRECTION = 60

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	11.85	3.08	1.48	0.30	0.08	0.01	0.04	0.00	0.02	0.23	17.10	
01-02	5.34	2.94	1.41	0.64	0.15	0.08	0.01	0.00	0.01	0.04	10.62	
02-03	0.54	0.57	0.12	0.24	0.11	0.05	0.02	0.01	0.00	0.00	1.55	
03-04	0.14	0.05	0.00	0.04	0.03	0.04	0.00	0.00	0.00	0.00	0.30	
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	17.88	6.64	3.00	1.22	0.20	0.19	0.07	0.01	0.02	0.28		

NASSAU BETWEEN FILL AND DREDGE SITES
 CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 90

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	3.88	1.01	1.01	0.25	0.14	0.09	0.03	0.00	0.04	0.15		6.59
01-02	4.44	1.61	0.51	0.23	0.09	0.10	0.00	0.00	0.00	0.01		6.99
02-03	1.22	0.33	0.02	0.02	0.02	0.03	0.00	0.00	0.00	0.00		1.63
03-04	0.16	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.21
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	9.70	2.93	1.54	0.50	0.24	0.21	0.03	0.00	0.04	0.15		

NASSAU BETWEEN FILL AND DREDGE SITES
 CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 120

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	3.80	1.23	0.65	0.25	0.01	0.01	0.01	0.01	0.05	0.20		6.21
01-02	3.45	0.83	0.05	0.11	0.04	0.04	0.01	0.01	0.00	0.03		4.56
02-03	1.18	0.03	0.00	0.06	0.01	0.01	0.00	0.00	0.00	0.00		1.30
03-04	0.20	0.00	0.00	0.01	0.00	0.03	0.03	0.00	0.00	0.00		0.23
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	3.63	2.03	0.70	0.43	0.06	0.00	0.00	0.02	0.05	0.23		

NASSAU BETWEEN FILL AND DREDGE SITES
 CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 150

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	10.32	1.63	0.32	0.04	0.01	0.01	0.01	0.00	0.04	0.19	12.57	
01-02	8.22	2.55	0.59	0.04	0.05	0.02	0.00	0.01	0.00	0.06	11.74	
02-03	3.90	0.41	0.18	0.03	0.01	0.01	0.00	0.00	0.00	0.00	4.53	
03-04	0.49	0.09	0.04	0.02	0.00	0.03	0.01	0.00	0.00	0.00	0.67	
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	23.02	4.73	1.11	0.14	0.06	0.07	0.02	0.01	0.05	0.24		

WINDSPEED BETWEEN FULL AND DROUSE CLIM
 CUMULATIVE GEAR / ONCE FREQUENCY OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 100

HEIGHT (M)	PERIOD (SEC)	15-16	17-18	19-20	21-22	23-24	TOTAL
00-01	0-2	0.00	0.00	0.00	0.00	0.00	0.00
01-02	3-4	0.00	0.00	0.00	0.00	0.00	0.00
02-03	5-6	0.00	0.00	0.00	0.00	0.00	0.00
03-04	7-8	0.00	0.00	0.00	0.00	0.00	0.00
04-05	9-10	0.00	0.00	0.00	0.00	0.00	0.00
05-06	11-12	0.00	0.00	0.00	0.00	0.00	0.00
06-07	13-14	0.00	0.00	0.00	0.00	0.00	0.00
07-08	15-16	0.00	0.00	0.00	0.00	0.00	0.00
08-09	17-18	0.00	0.00	0.00	0.00	0.00	0.00
09-10	19-20	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		0.00	0.00	0.00	0.00	0.00	0.00

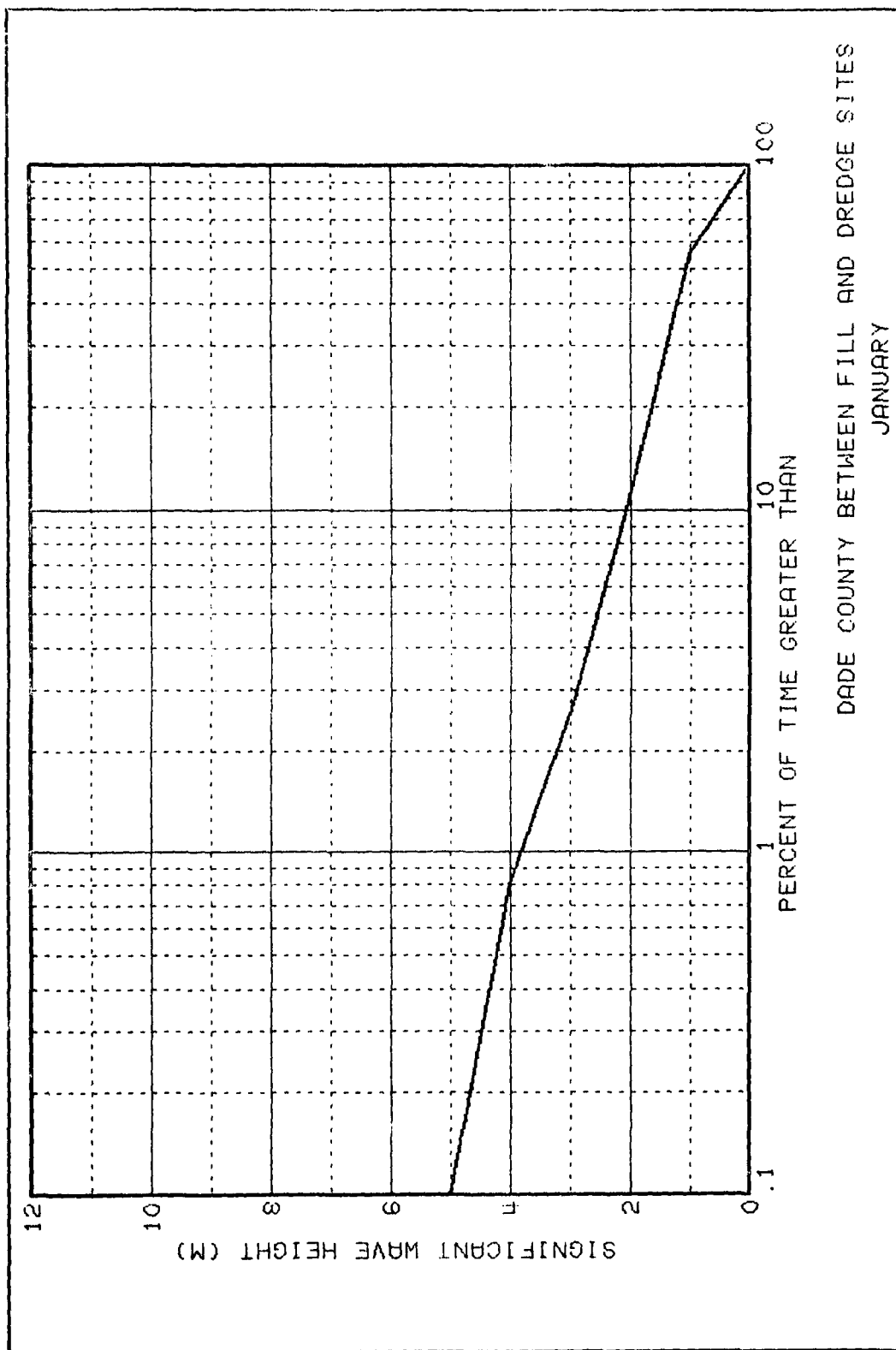
APPENDIX F: AVERAGE WAVE CLIMATE AT DADE COUNTY, FLA.

1. Appendix F contains the following information for the Dade County, Fla., project site:

- a. Tabulations of monthly percent occurrence of wave-height/period combinations.
- b. Tabulations of annual percent occurrence by azimuth direction of wave-height/period combinations.
- c. Plots of monthly significant wave-height occurrence in terms of the total percent time per month that these heights are exceeded.

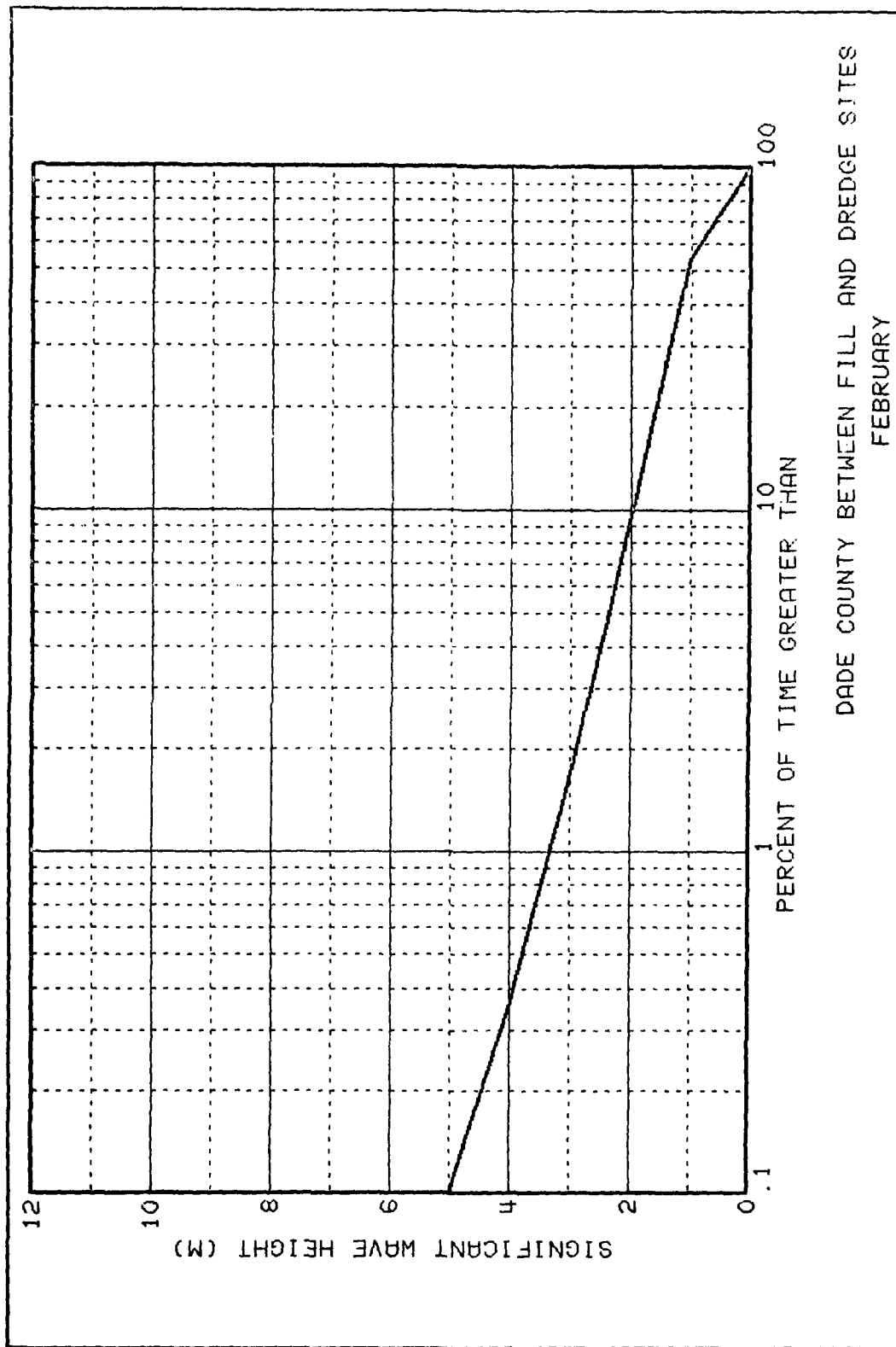
DRA COUNTY BETWEEN FILL AND DRENCH SITES
 CUMULATIVE SFC - CUMULATIVE SFC OF DRAINAGE AND FILL FOR JANUARY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	05-01	06-08	07-10	08-12	09-14	10-16	11-18	12-20	13-22	14-24	
00-01	0.29	7.05	1.24	0.58	0.33	0.06	0.06	0.00	0.00	0.87	44.00
01-02	23.23	11.18	5.23	0.52	0.33	0.16	0.02	0.00	0.08	0.37	41.20
02-03	2.31	3.03	1.37	0.38	0.34	0.03	0.04	0.00	0.00	0.12	0.30
03-04	0.17	0.27	0.15	0.23	0.26	0.03	0.00	0.01	0.00	0.05	1.70
04-05	0.11	0.00	0.05	0.37	0.00	0.15	0.00	0.06	0.06	0.00	0.30
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	65.70	21.57	8.34	2.15	1.35	0.40	0.12	0.06	0.03	1.07	



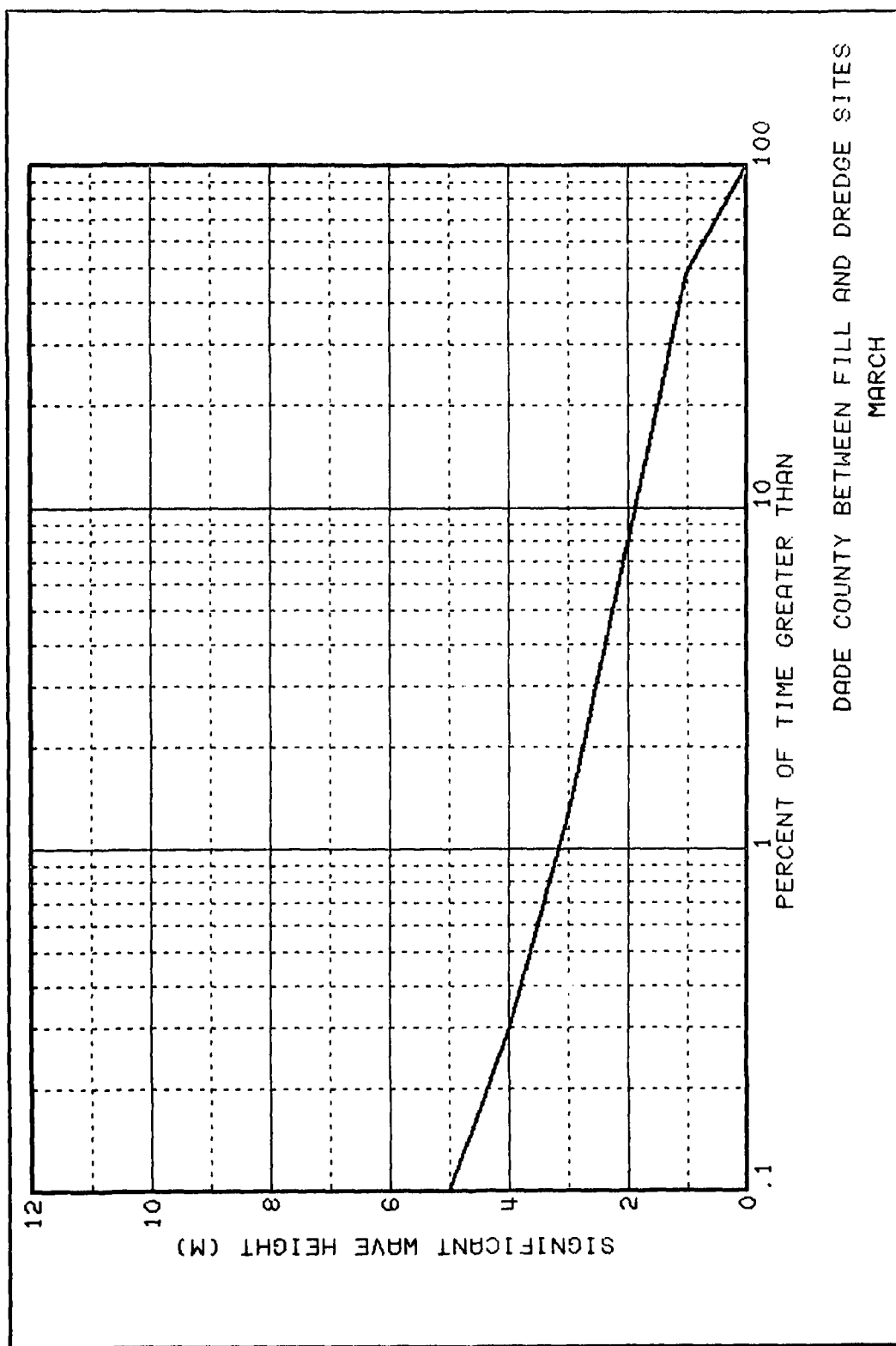
DADE COUNTY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)	PERIOD (SECS)											TOTAL
	<5-6	6-8	9-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	35.47	7.30	1.77	0.28	0.15	0.05	0.00	0.00	0.11	0.83		45.95
01-02	28.42	11.29	3.32	0.89	0.29	0.04	0.00	0.00	0.02	0.55		44.02
02-03	2.13	2.23	2.19	0.52	0.17	0.10	0.09	0.00	0.00	0.11		7.55
03-04	0.17	0.53	0.09	0.22	0.02	0.01	0.03	0.00	0.00	0.00		1.20
04-05	0.04	0.00	0.12	0.03	0.06	0.05	0.00	0.00	0.00	0.00		0.35
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	63.23	21.20	7.69	2.00	0.69	0.25	0.12	0.00	0.12	1.50		



DADE COUNTY BETWEEN FILL AND SPEDGE SITES
CUMULATIVE SEH / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MARCH

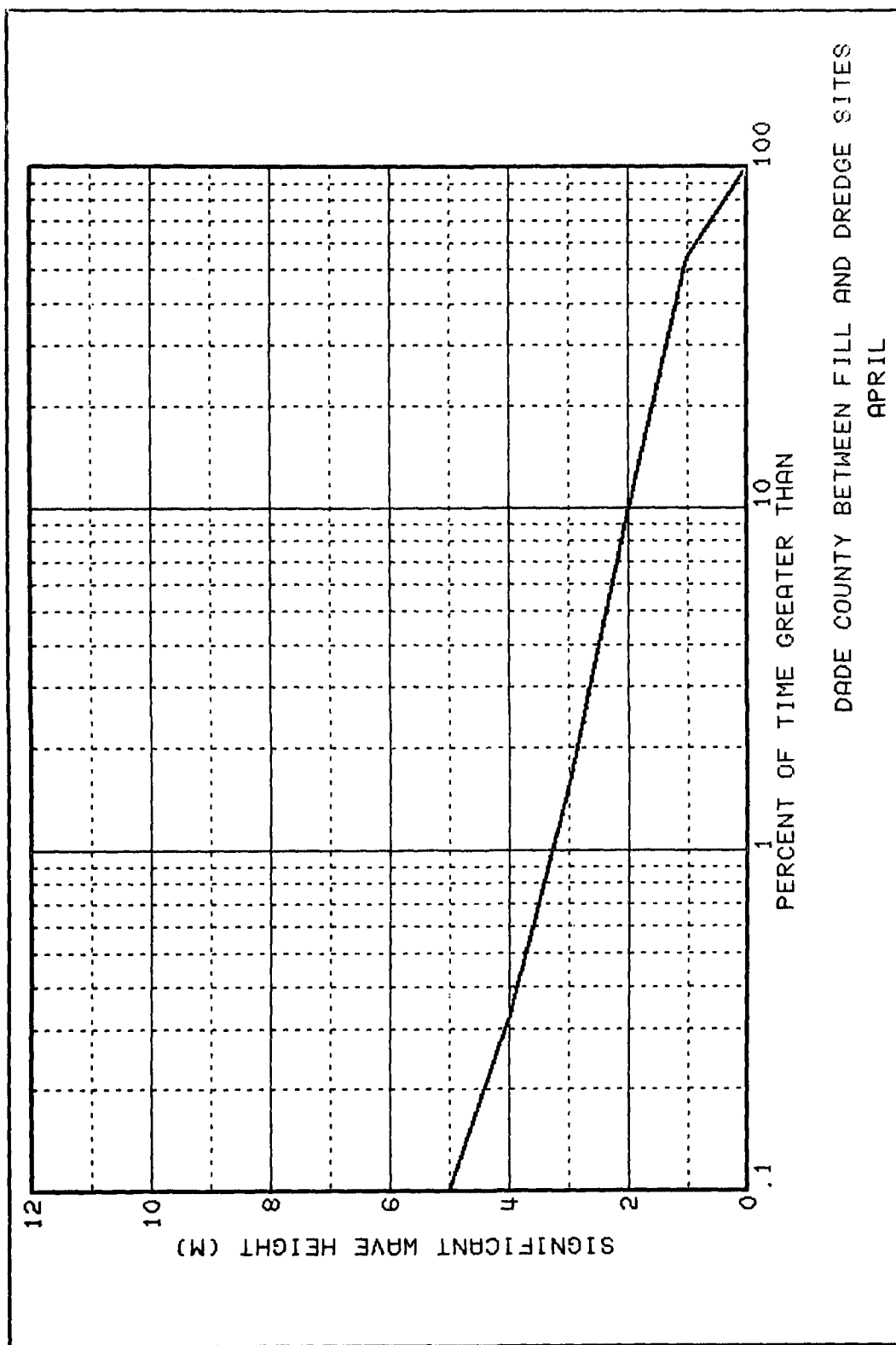
HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-5	5-9	9-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	39.03	8.57	1.94	0.37	0.26	0.24	0.00	0.00	0.23	0.30	51.34
01-02	26.81	9.28	3.09	0.72	0.13	0.10	0.06	0.00	0.10	0.46	40.80
02-03	2.76	2.09	1.09	0.11	0.13	0.12	0.00	0.00	0.07	0.17	6.00
03-04	0.21	0.24	0.32	0.09	0.05	0.00	0.00	0.00	0.00	0.02	0.35
04-05	0.08	0.00	0.12	0.03	0.00	0.06	0.00	0.00	0.00	0.00	0.29
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	68.89	19.30	5.56	1.22	0.59	0.52	0.06	0.00	0.40	1.55	



DADE COUNTY BETWEEN FILL AND DREDGE SITES

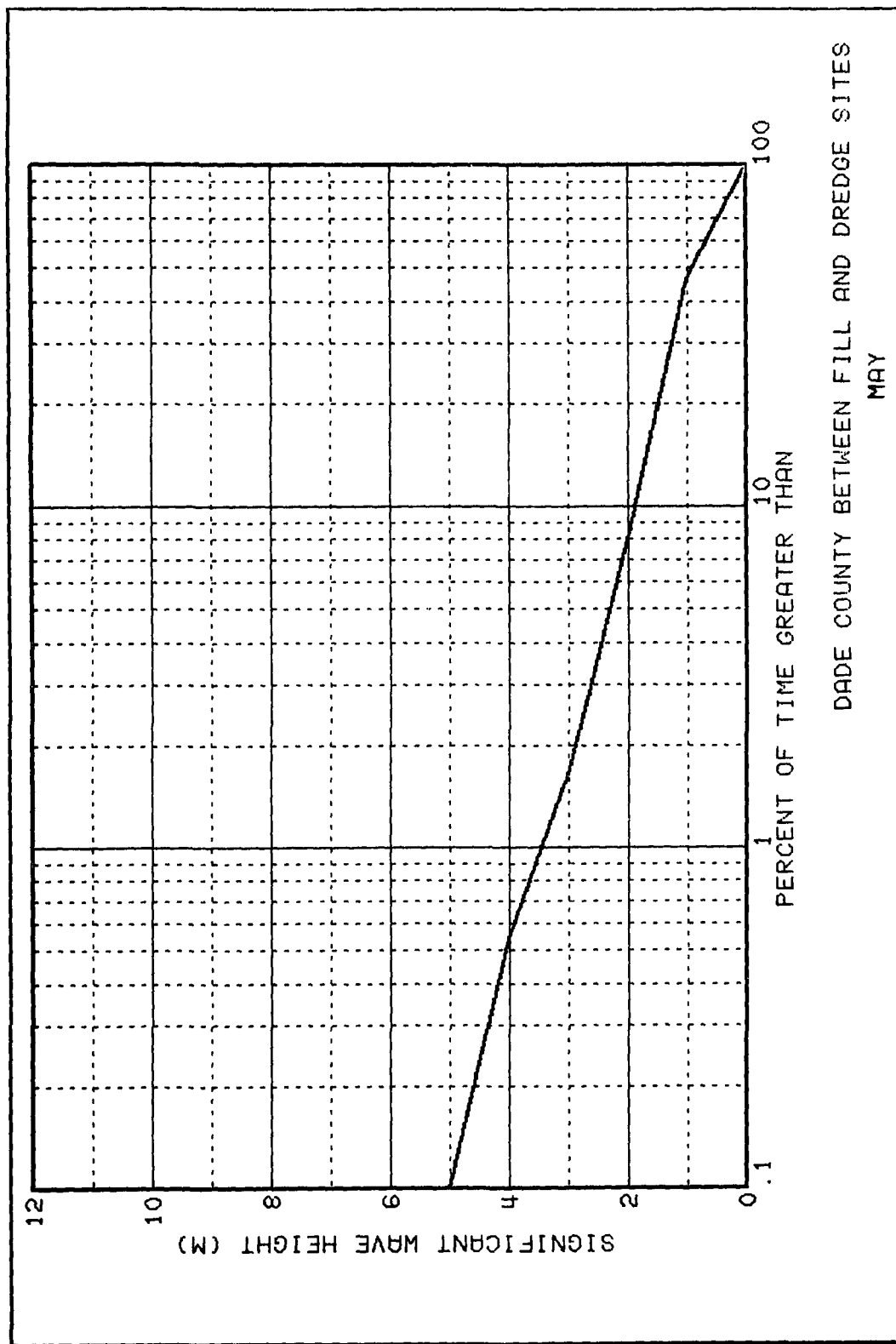
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR APRIL

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	9-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	36.22	5.16	1.29	0.52	0.15	0.00	0.00	0.04	0.00	1.06	45.43
01-02	23.92	12.20	2.16	0.85	0.25	0.06	0.00	0.02	0.00	0.03	44.98
02-03	2.82	2.98	1.25	0.44	0.22	0.05	0.00	0.05	0.03	0.11	9.00
03-04	0.52	0.32	0.25	0.20	0.08	0.00	0.00	0.00	0.00	0.00	1.15
04-05	0.13	0.00	0.06	0.05	0.03	0.00	0.00	0.00	0.00	0.00	0.32
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	62.43	21.66	5.10	2.00	0.70	0.11	0.00	0.11	0.03	1.06	



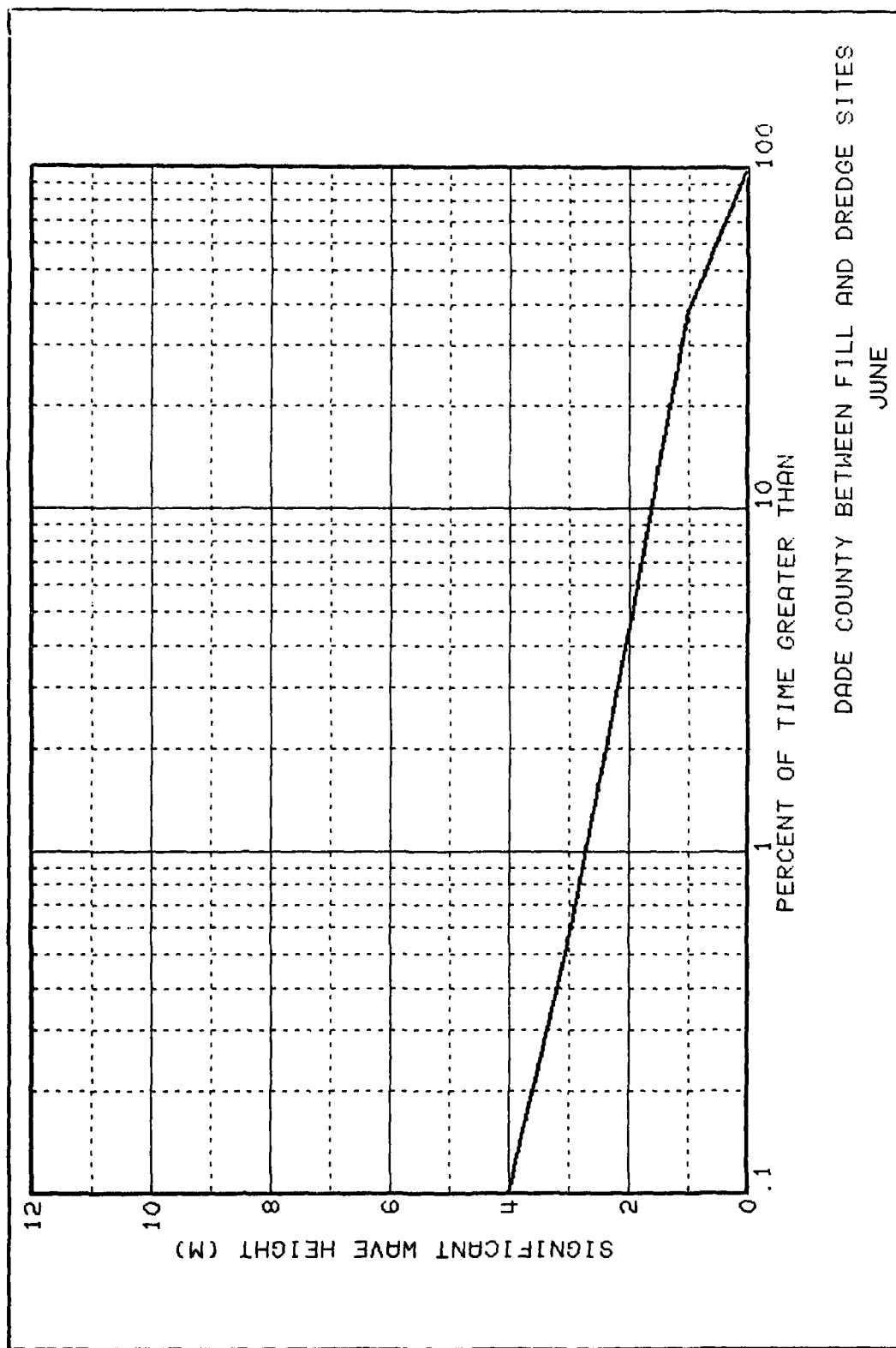
DATE COUNTY BETWEEN FILL AND DREDGE SITES
 CUMULATIVE SEP / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	46.16	4.02	0.68	0.12	0.02	0.21	0.00	0.00	0.36	1.00	53.47
01-02	25.96	3.97	1.30	0.30	0.24	0.00	0.02	0.00	0.10	0.58	33.54
02-03	3.24	2.40	0.94	0.31	0.15	0.04	0.04	0.00	0.00	0.21	6.38
03-04	0.12	0.33	0.29	0.15	0.07	0.08	0.04	0.00	0.00	0.03	1.11
04-05	0.00	0.09	0.22	0.05	0.04	0.09	0.00	0.00	0.05	0.00	0.54
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	75.48	16.71	3.47	0.64	0.43	0.42	0.10	0.00	0.57	1.82	



OSAGE COUNTY BETWEEN FILL AND DREDGE SITES
 CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

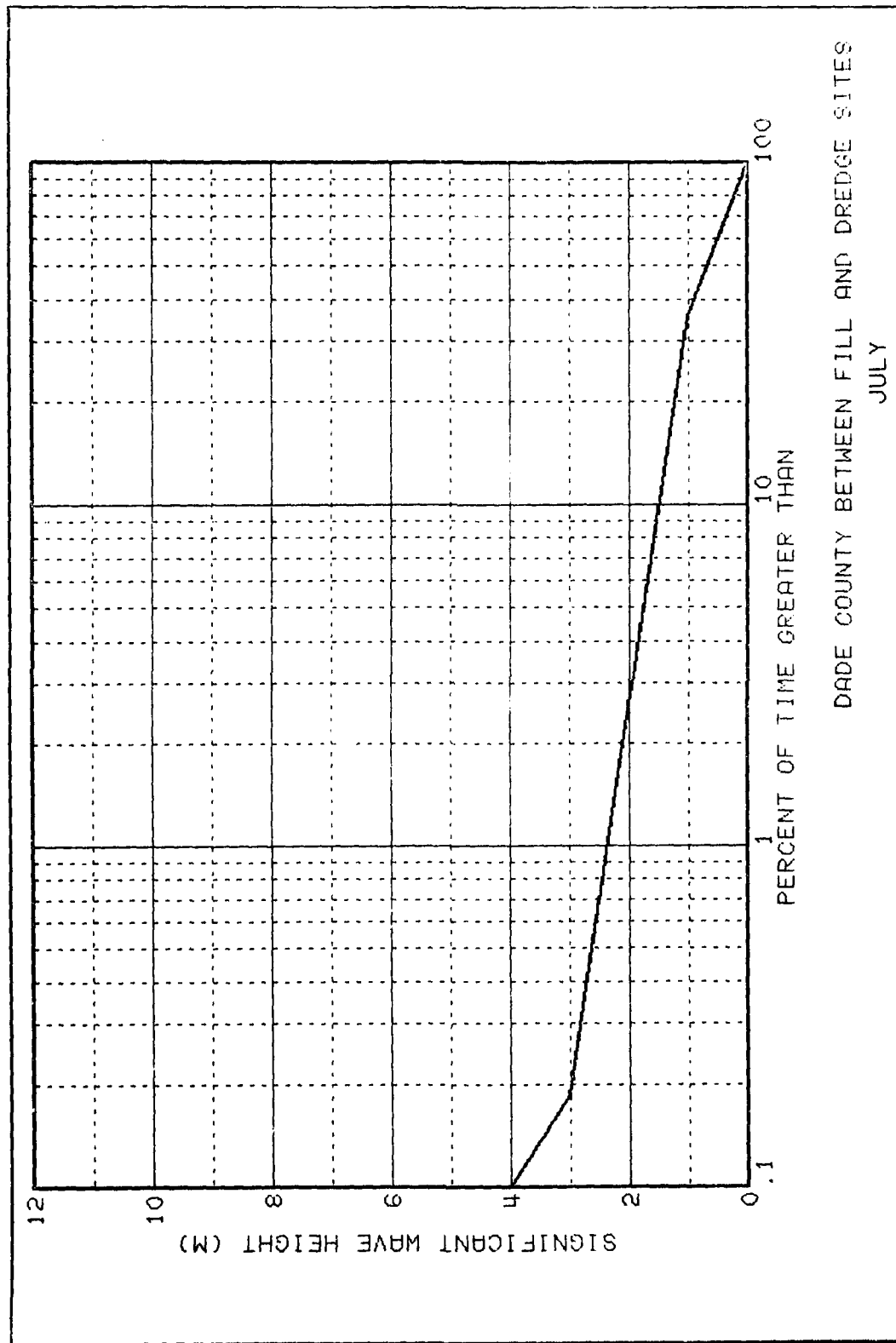
HEIGHT (M)	4.5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	TOTAL
00-01	52.10	5.00	0.14	0.00	0.00	0.41	0.00	0.05	0.45	1.52	61.68
01-02	34.47	6.72	1.41	0.10	0.17	0.17	0.00	0.00	0.23	0.70	39.87
02-03	1.00	1.69	0.79	0.15	0.23	0.10	0.00	0.00	0.06	0.13	3.80
03-04	0.00	0.07	1.14	0.05	0.04	0.07	0.00	0.00	0.03	0.03	0.43
04-05	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	77.69	13.49	3.47	0.30	0.35	0.74	0.00	0.05	0.74	2.10	



SPACE COUNTY BETWEEN TILL AND DREDGE SITES

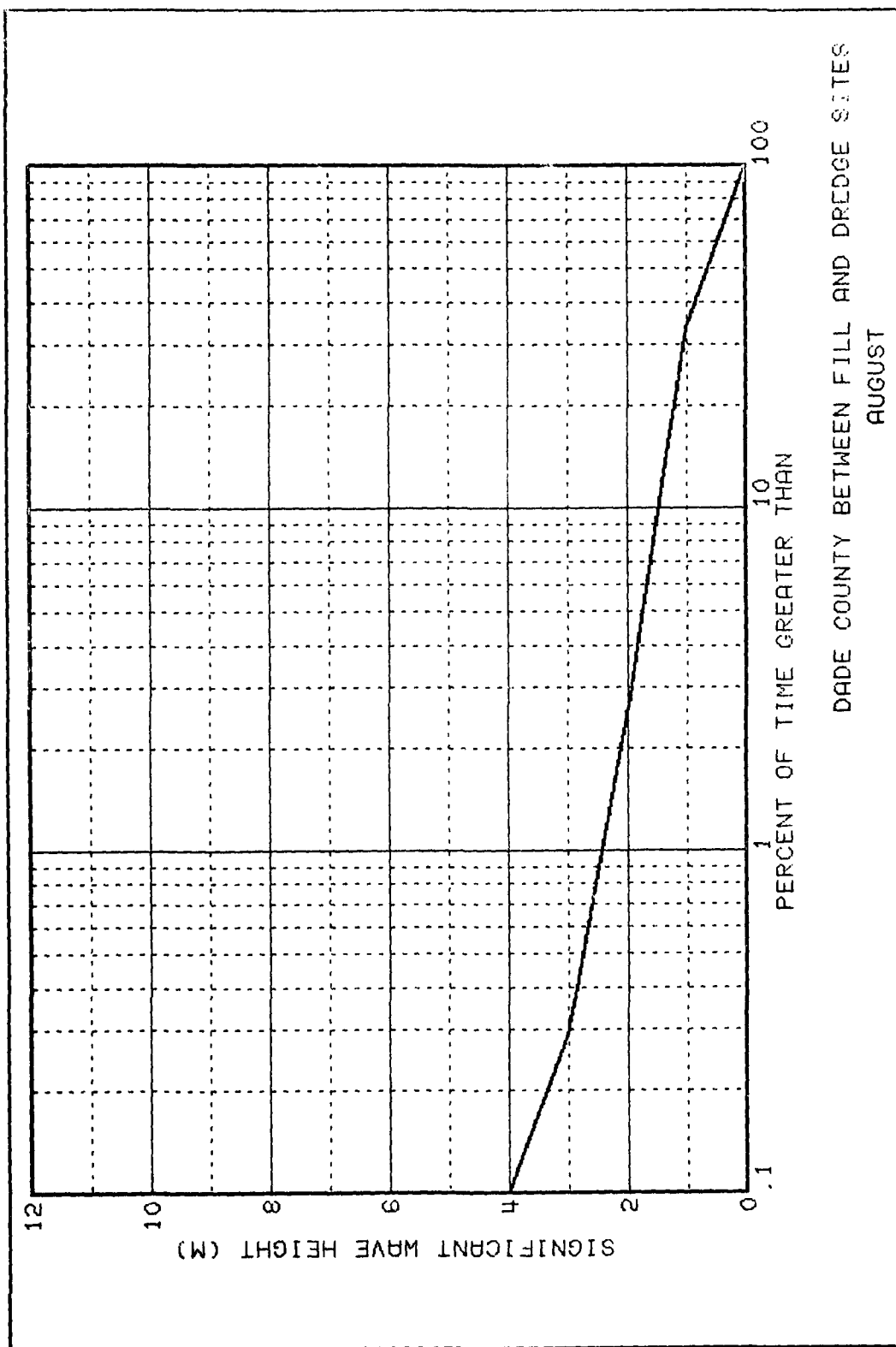
CUMULATIVE SEE / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

HEIGHT (M)	PERIOD (SEC)	TOTAL
	15-16 5-8 3-10 10-12 12-14 14-16 16-18 18-20 20-22 >22	
00-01	55.53 4.00 0.90 0.36 0.09 0.05 0.10 0.00 0.22	64.20
01-02	23.43 6.02 1.11 0.43 0.07 0.03 0.04 0.02 0.10	33.09
02-03	1.68 0.95 0.35 0.10 0.07 0.02 0.00 0.03 0.00	2.42
03-04	1.07 0.00 0.02 0.04 0.00 0.00 0.00 0.00 0.00	0.11
04-05	0.00 0.00 0.05 0.00 0.00 0.00 0.00 0.00 0.00	0.05
05-06	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	0.00
06-07	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	0.00
07-08	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	0.00
08-09	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	0.00
09-10	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	0.00
10-11	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	0.00



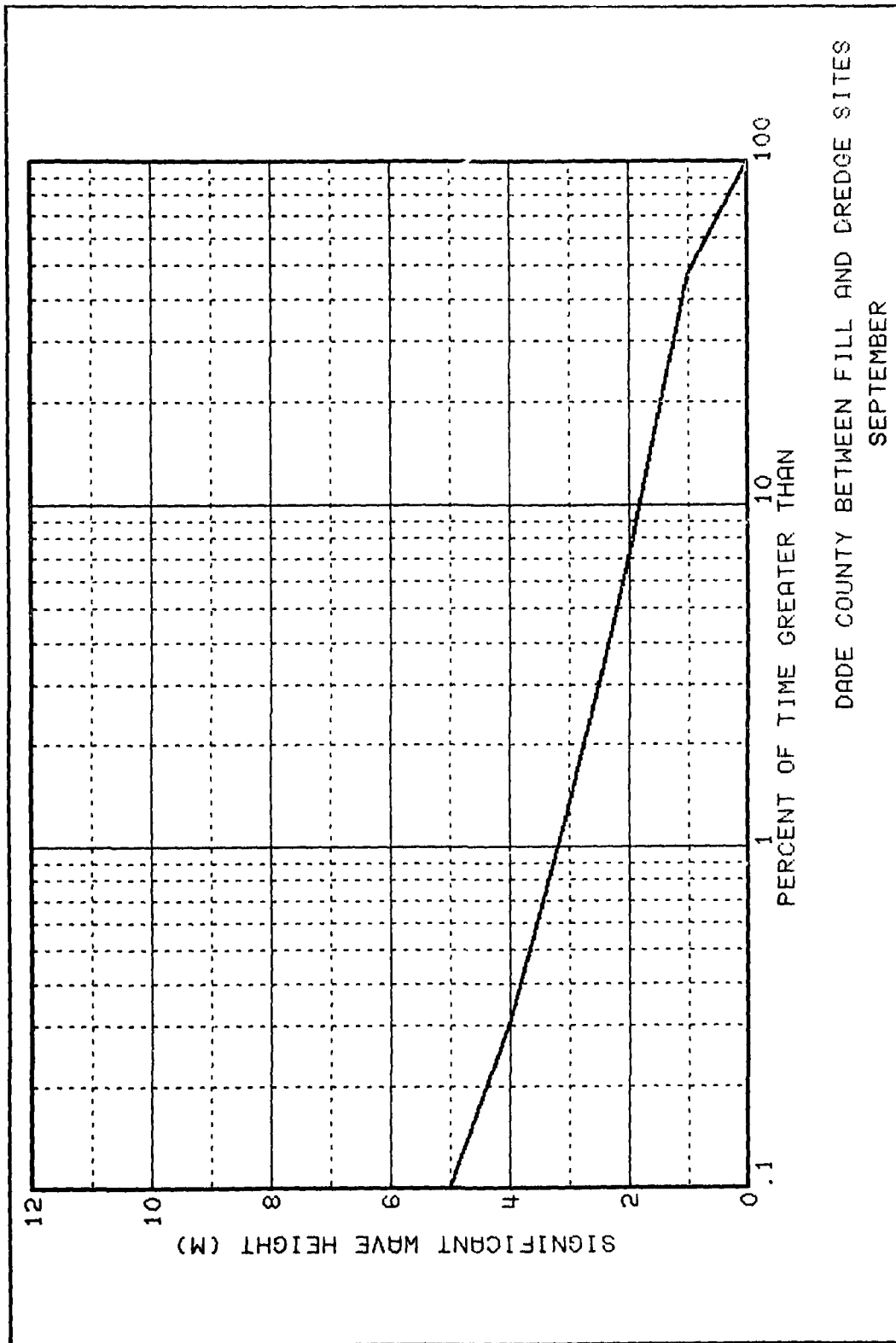
DADE COUNTY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	58.88	3.80	1.01	0.31	0.17	0.04	0.14	0.00	0.39	1.55	66.30	
01-02	22.47	6.33	1.04	0.19	0.17	0.10	0.01	0.00	0.13	0.75	31.20	
02-03	0.81	0.69	0.23	0.22	0.09	0.02	0.00	0.05	0.03	0.06	2.19	
03-04	0.00	0.06	0.08	0.03	0.02	0.00	0.00	0.00	0.01	0.01	0.20	
04-05	0.00	0.03	0.01	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.09	
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	82.16	10.91	2.37	0.81	0.45	0.15	0.15	0.05	0.55	2.27		



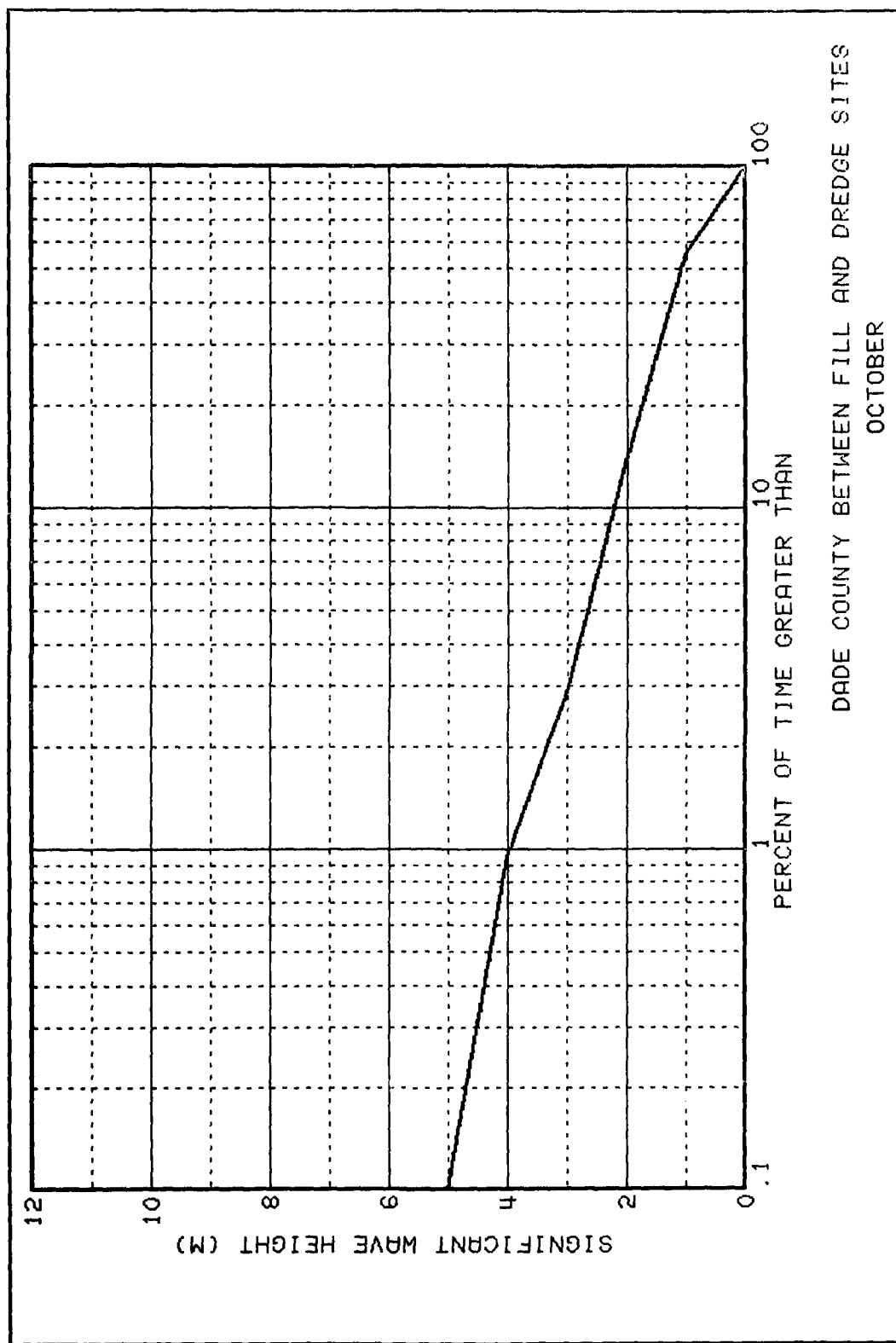
DADE COUNTY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	44.54	5.50	1.11	0.34	0.15	0.28	0.00	0.00	0.18	0.75	52.84
01-02	27.69	9.23	1.93	0.48	0.29	0.11	0.00	0.00	0.08	0.40	40.22
02-03	1.83	1.85	1.25	0.35	0.04	0.28	0.00	0.00	0.03	0.02	5.65
03-04	0.09	0.19	0.25	0.19	0.08	0.19	0.00	0.00	0.00	0.00	0.99
04-05	0.04	0.00	0.15	0.07	0.02	0.02	0.00	0.00	0.00	0.00	0.31
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	74.19	16.77	4.69	1.42	0.59	0.89	0.00	0.00	0.29	1.17	



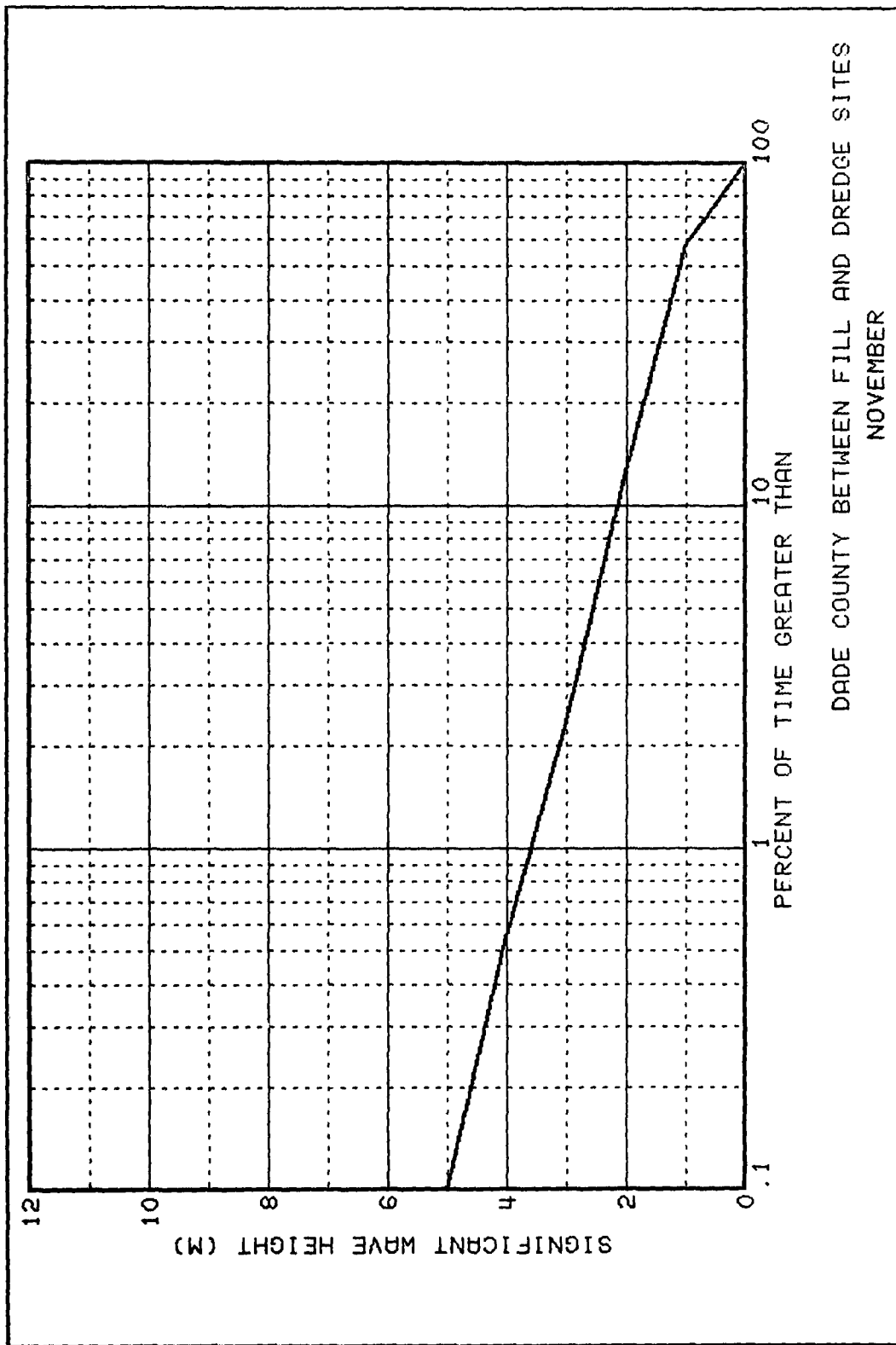
DADE COUNTY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	34.23	7.15	1.11	0.36	0.16	0.13	0.04	0.04	0.36	0.87	44.44	
01-02	24.47	12.60	3.36	0.49	0.15	0.16	0.01	0.02	0.09	0.45	41.80	
02-03	2.69	3.91	2.72	1.08	0.26	0.08	0.00	0.00	0.05	0.09	10.88	
03-04	0.20	0.44	0.79	0.26	0.15	0.03	0.05	0.00	0.00	0.01	1.93	
04-05	0.18	0.03	0.21	0.23	0.24	0.00	0.00	0.00	0.00	0.05	0.95	
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	61.76	24.13	8.19	2.43	0.96	0.40	0.10	0.05	0.51	1.47		



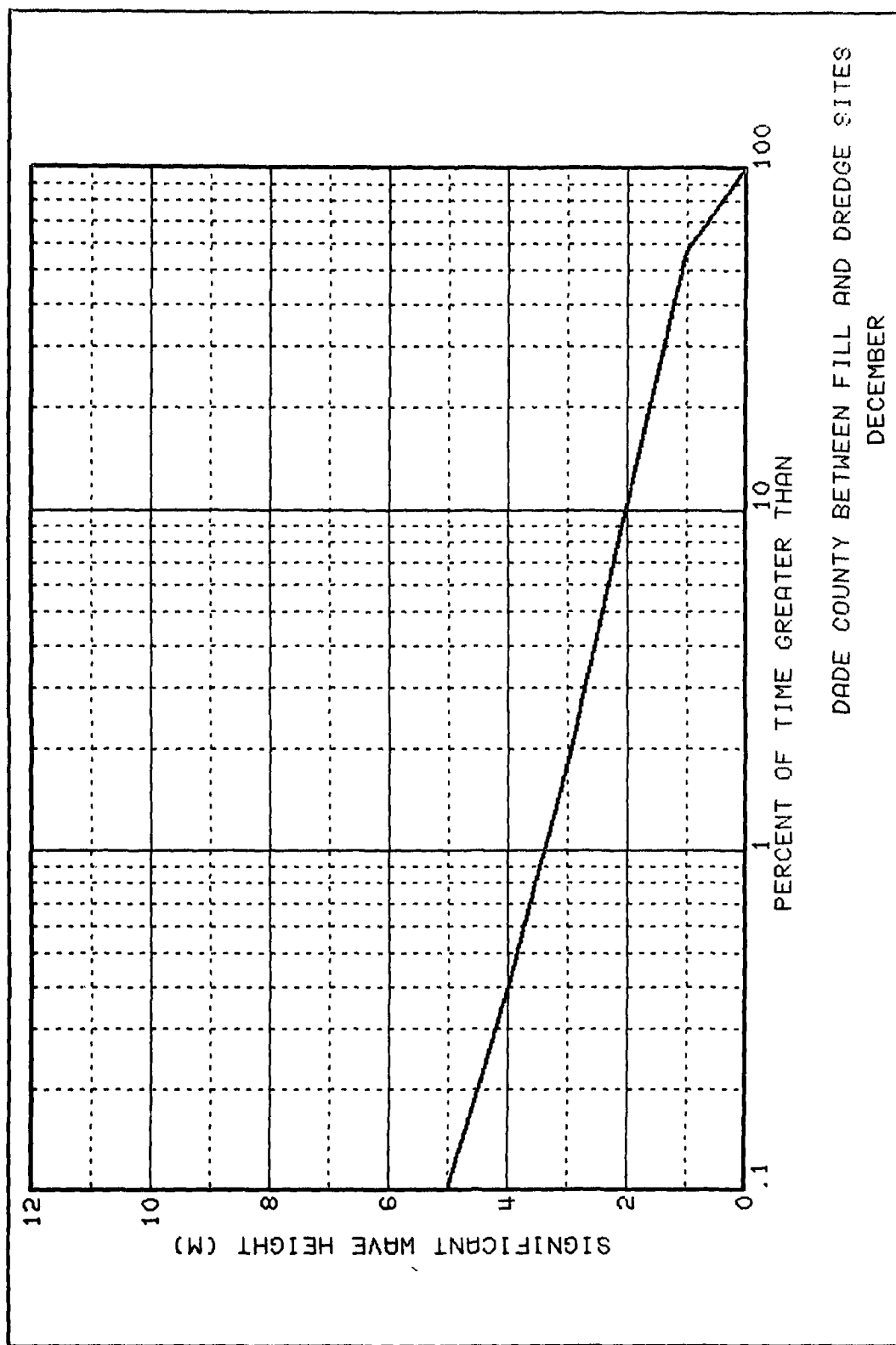
DADE COUNTY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	31.70	7.33	1.06	0.53	0.28	0.09	0.09	0.04	0.17	0.97		42.28
01-02	26.76	14.27	2.50	0.90	0.06	0.04	0.01	0.03	0.04	0.40		45.02
02-03	2.55	4.34	2.54	0.61	0.18	0.07	0.00	0.05	0.00	0.00		10.35
03-04	0.32	0.48	0.43	0.39	0.09	0.05	0.00	0.04	0.00	0.00		1.80
04-05	0.05	0.09	0.18	0.05	0.07	0.05	0.00	0.05	0.00	0.00		0.55
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	61.37	26.51	6.72	2.40	0.60	0.22	0.11	0.21	0.21	1.37		



DADE COUNTY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	33.21	6.08	1.68	0.27	0.12	0.14	0.04	0.00	0.12	1.25		42.92
01-02	29.43	11.92	3.71	0.90	0.17	0.23	0.01	0.00	0.01	0.49		46.88
02-03	2.37	2.99	2.04	0.67	0.09	0.17	0.00	0.00	0.04	0.10		8.46
03-04	0.13	0.31	0.47	0.38	0.02	0.04	0.00	0.00	0.01	0.01		1.36
04-05	0.00	0.00	0.07	0.09	0.17	0.00	0.06	0.00	0.00	0.00		0.39
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	65.15	21.29	7.97	2.31	0.53	0.53	0.12	0.00	0.17	1.55		



DADE COUNTY BETWEEN FILL AND DREDGE SITES
 CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 0

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
01-02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
02-03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00

DADE COUNTY BETWEEN FILL AND DREDGE SITES
 CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 30

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	7.55	1.97	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.05	
01-02	4.22	0.82	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.68	
02-03	0.52	0.03	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61	
03-04	0.05	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	
04-05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	12.35	2.83	1.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

DADE COUNTY BETWEEN FILL AND DREDGE SITES
 CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 60

HEIGHT (M)	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	TOTAL
00-01	6.45	1.19	0.18	0.19	0.10	0.09	0.00	0.00	0.00	0.00	8.19
01-02	6.55	4.22	0.77	0.33	0.11	0.05	0.01	0.00	0.00	0.00	12.04
02-03	0.63	1.42	0.82	0.11	0.07	0.05	0.01	0.01	0.00	0.00	3.11
03-04	0.06	0.17	0.22	0.05	0.03	0.02	0.00	0.00	0.00	0.00	0.55
04-05	0.02	0.01	0.07	0.03	0.00	0.01	0.00	0.00	0.00	0.00	0.14
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	13.70	7.02	2.06	0.72	0.30	0.22	0.02	0.01	0.00	0.00	

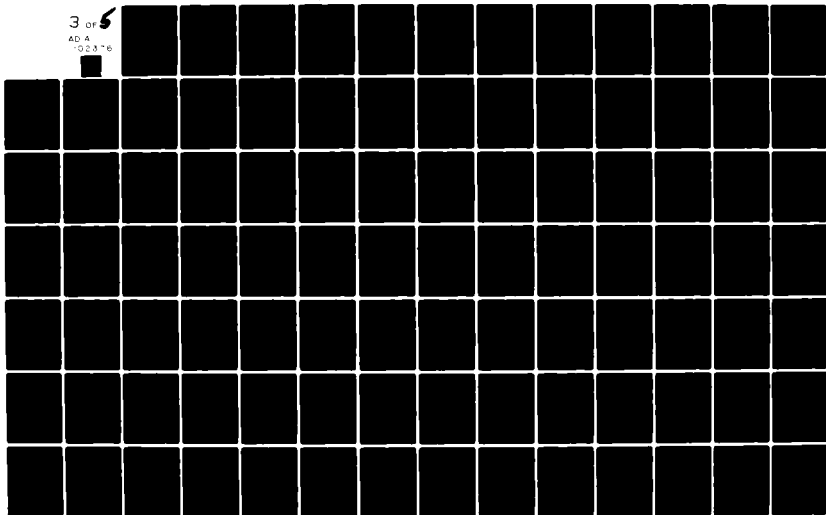
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ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG MS F/G 8/3
BEACH NOURISHMENT TECHNIQUES. REPORT 4. WAVE CLIMATES FOR SELEC--ETC(U)
APR 81 D L DURHAM; L Z HALES; T W RICHARDSON
WES-TR-H-76-13-4-APP

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DADE COUNTY BETWEEN FILL AND DREDGE SITES
 CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 90

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	10.64	0.83	0.11	0.11	0.04	0.03	0.02	0.01	0.24	1.16	13.20	
01-02	7.83	3.03	0.50	0.16	0.08	0.04	0.01	0.01	0.09	0.57	12.32	
02-03	0.52	0.68	0.35	0.29	0.10	0.04	0.00	0.01	0.03	0.11	2.13	
03-04	0.04	0.06	0.09	0.13	0.05	0.03	0.00	0.00	0.00	0.01	0.41	
04-05	0.01	0.01	0.02	0.05	0.06	0.02	0.00	0.01	0.01	0.00	0.20	
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	19.04	4.60	1.07	0.74	0.32	0.16	0.04	0.04	0.37	1.06		

DADE COUNTY BETWEEN FILL AND DREDGE SITES
 CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 120

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	4.29	0.73	0.42	0.08	0.02	0.03	0.02	0.00	0.00	0.00	0.00	5.59
01-02	3.04	1.87	0.39	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	5.37
02-03	0.18	0.25	0.14	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.60
03-04	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
04-05	0.01	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	7.53	2.37	0.93	0.17	0.04	0.04	0.02	0.00	0.00	0.00	0.00	

DADE COUNTY BETWEEN FILL AND DREDGE SITES
 CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 150

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	13.51	1.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.79
01-02	4.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.74
02-03	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16
03-04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	18.41	1.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

DADE COUNTY BETWEEN FILL AND DREDGE SITES
 CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 180

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
01-02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
02-03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00

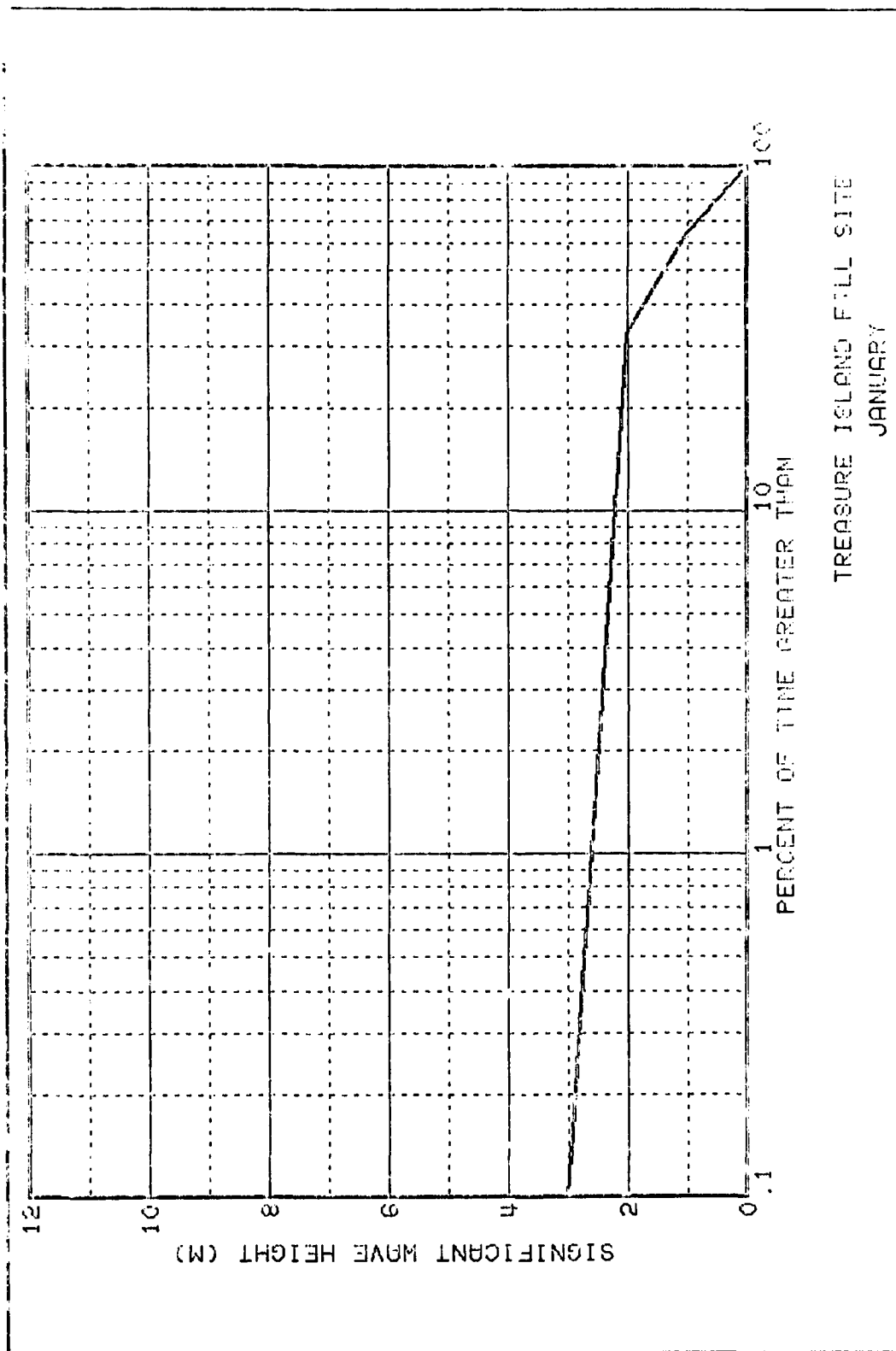
APPENDIX G: AVERAGE WAVE CLIMATE AT TREASURE ISLAND, FLA.

1. Appendix G contains the following information for the Treasure Island, Fla., fill site:

- a. Tabulations of monthly percent occurrence of wave-height/period combinations.
- b. Tabulations of annual percent occurrence by azimuth direction of wave-height/period combinations.
- c. Plots of monthly significant wave-height occurrence in terms of the total percent time per month that these heights are exceeded.

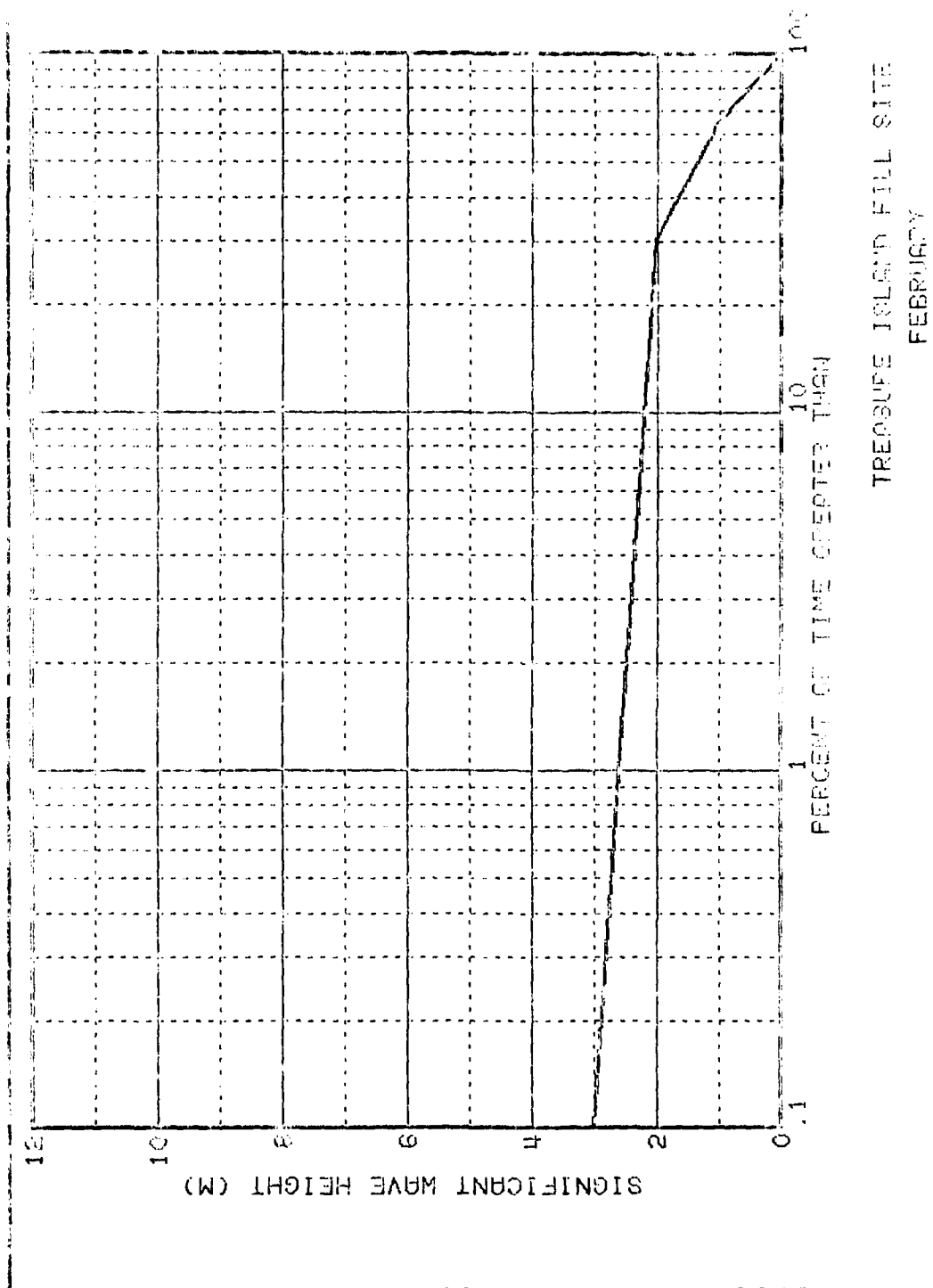
TREASURE ISLAND FILL SITE
CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JANUARY

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	21.58	9.10	1.55	1.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	95.87
01-02	11.49	12.85	6.11	0.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.85
02-03	10.59	9.33	6.92	3.92	0.55	0.00	0.00	0.00	0.00	0.00	0.00	59.17
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10-11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	53.07	31.28	17.38	5.50	1.05	0.00	0.00	0.00	0.00	0.00	0.00	107.90



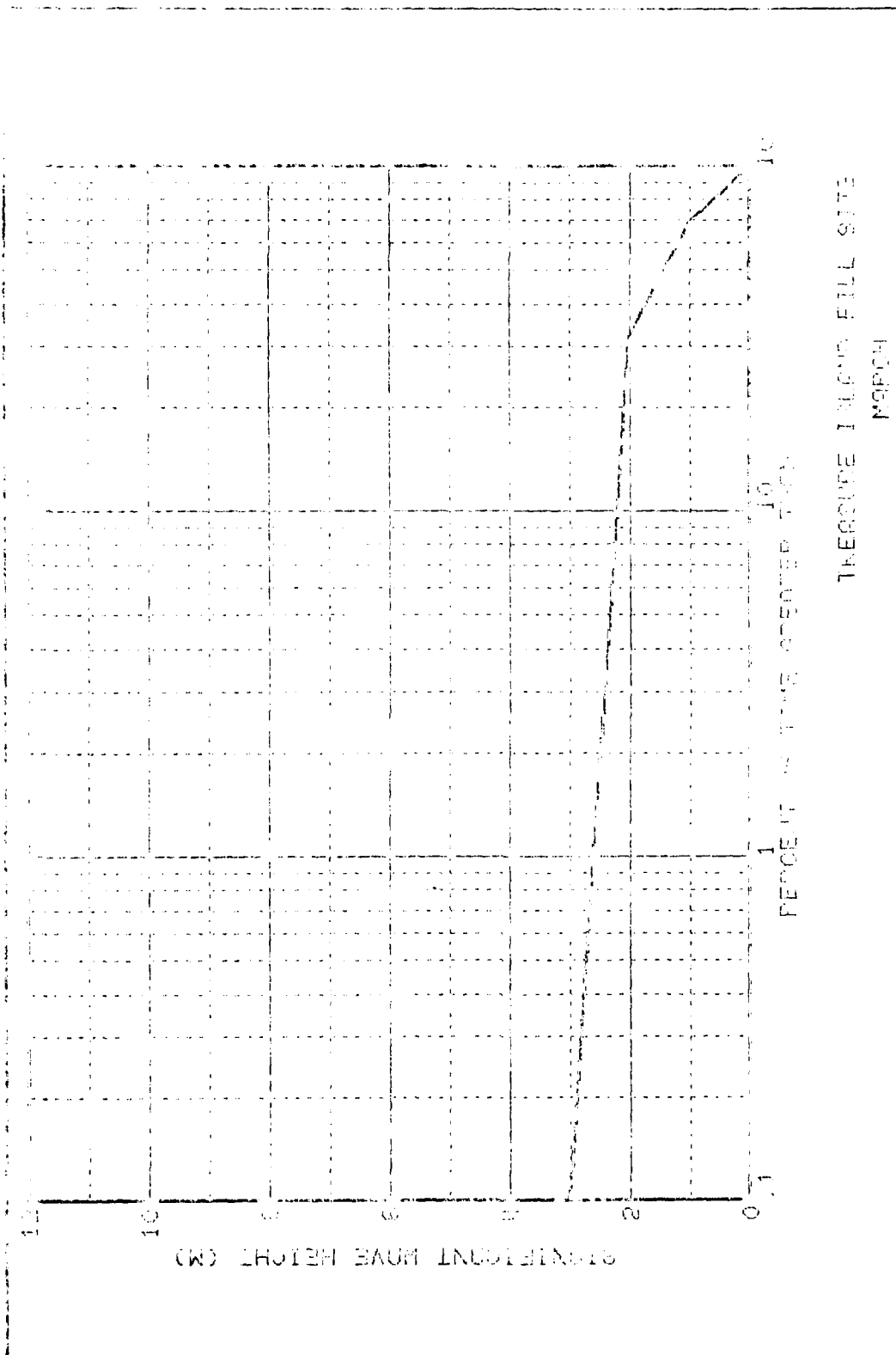
TREASURE ISLAND FILL SITE
CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<3-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	26.35	5.45	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.74	26.74	
01-02	14.33	12.46	4.74	1.41	0.00	0.26	0.00	0.00	0.00	1.80	24.79	
02-03	9.32	7.70	5.66	5.20	0.61	0.38	0.00	0.00	0.00	0.00	20.00	
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
10-11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
11-12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
12-13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
13-14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
14-15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
15-16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
16-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
17-18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
18-19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
19-20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
20-21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
21-22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
22-23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
23-24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
24-25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
25-26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
26-27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
27-28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
28-29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
29-30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
30-31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	50.00	20.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	



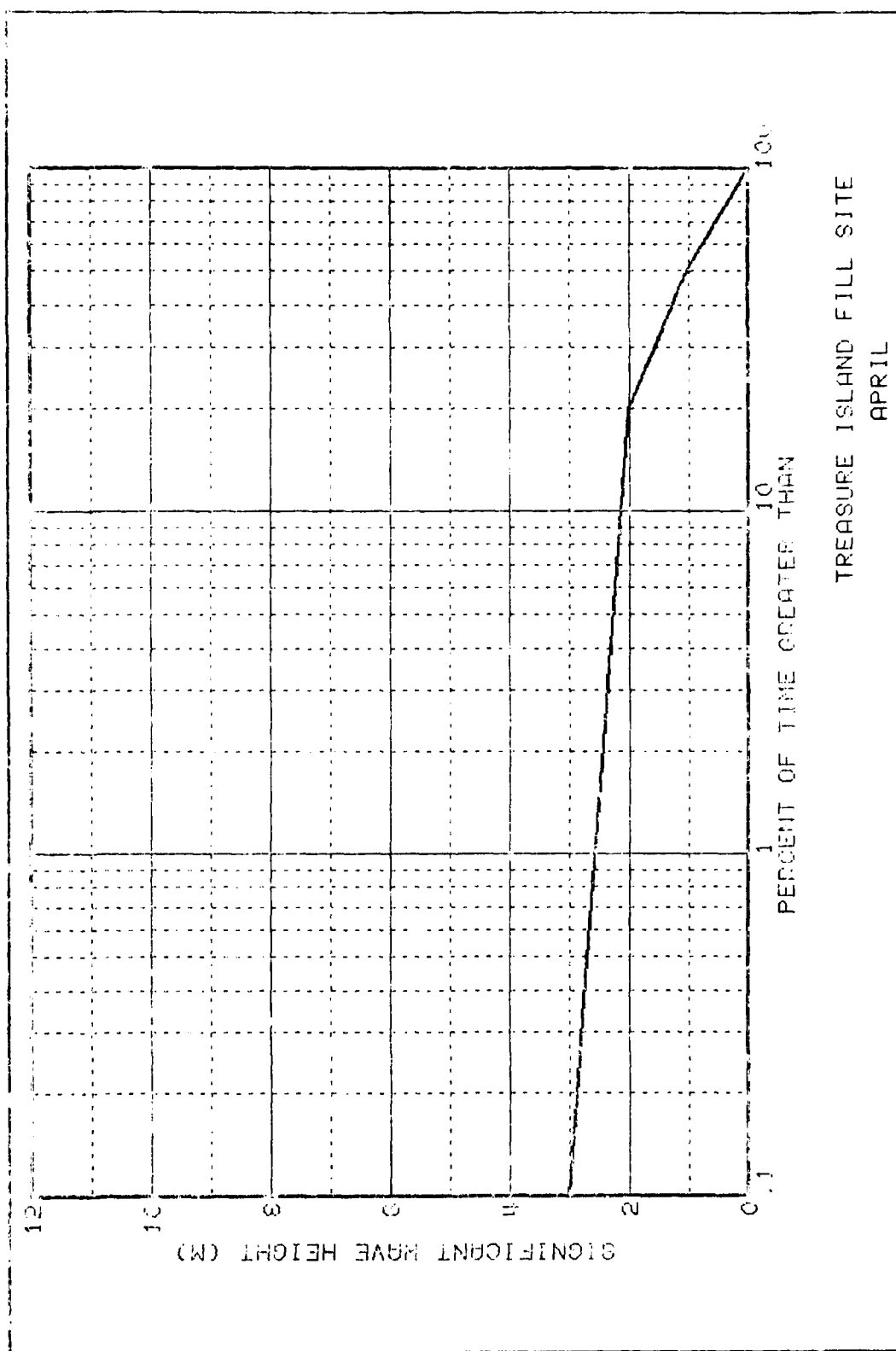
TREASURE ISLAND FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MORCH

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	9-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	25.86	3.24	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.16
01-02	19.48	13.62	3.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.75
02-03	13.91	7.04	2.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	23.95
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	59.25	24.11	6.33	1.00	0.00	0.00	0.00	0.00	0.00	0.00	80.39



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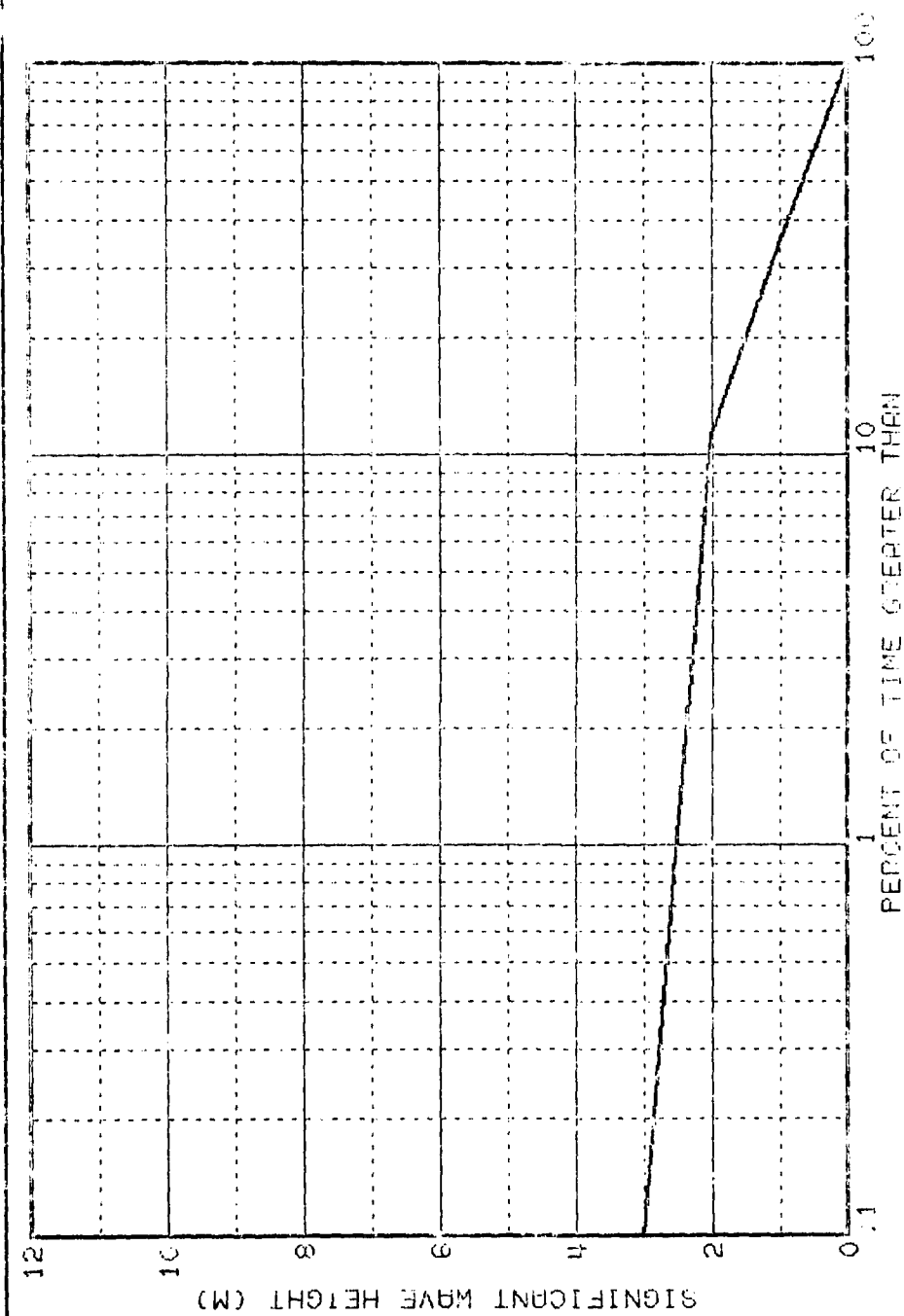


TREASURE ISLAND FILL SITE
APRIL

TREASURE ISLAND FILL SITE

CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

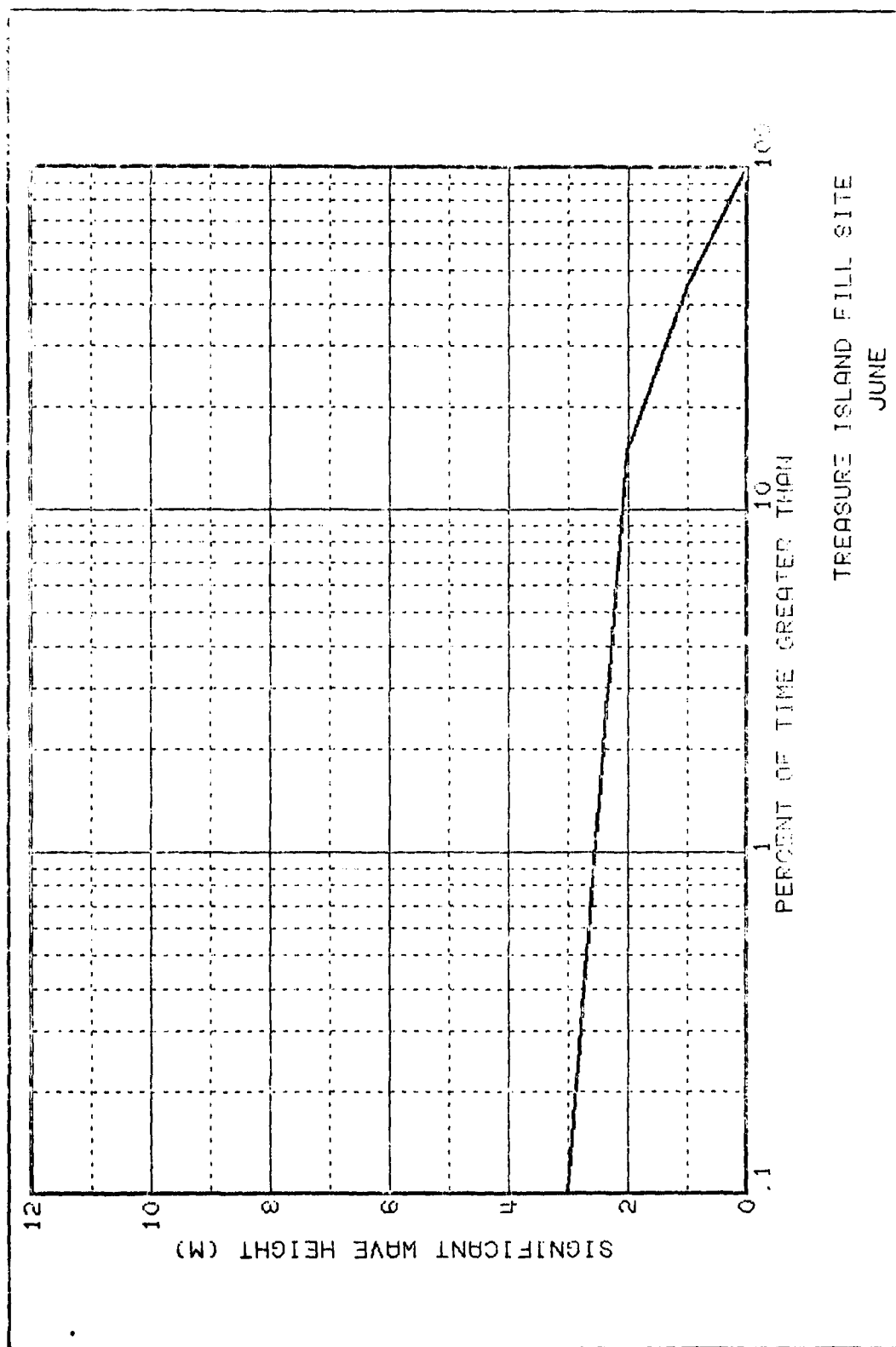
HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	59.03	4.42	0.00	0.00	0.71	0.00	0.73	0.00	0.00	0.53	65.47
01-02	17.84	4.21	0.72	0.00	0.10	0.00	0.07	0.00	0.00	0.28	23.21
02-03	5.34	5.28	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.62
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	82.25	14.32	0.94	0.00	0.81	0.00	0.81	0.00	0.00	0.81	



TREASURE ISLAND FILL SITE
MAY

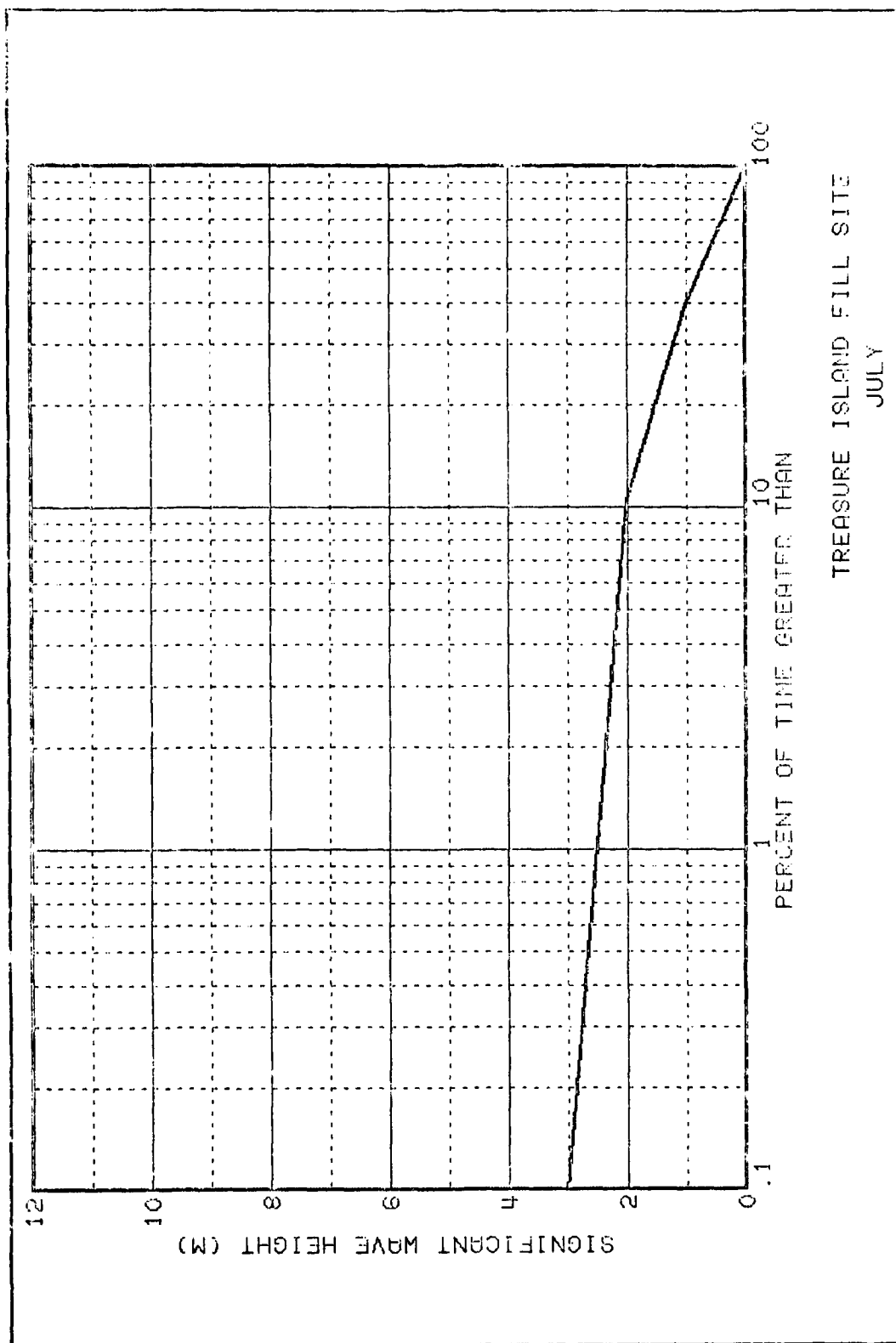
TREASURE ISLAND FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	47.31	4.44	1.30	0.93	0.00	0.00	0.00	0.00	0.37	0.21	55.16
01-02	21.93	6.06	1.15	0.07	0.00	0.28	0.00	0.00	0.14	0.26	29.67
02-03	9.63	2.57	1.56	0.50	0.00	0.23	0.00	0.00	0.00	0.45	14.36
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	79.24	13.03	4.01	1.43	0.00	0.49	0.00	0.00	0.50	1.27	



TREASURE ISLAND FILL SITE
CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

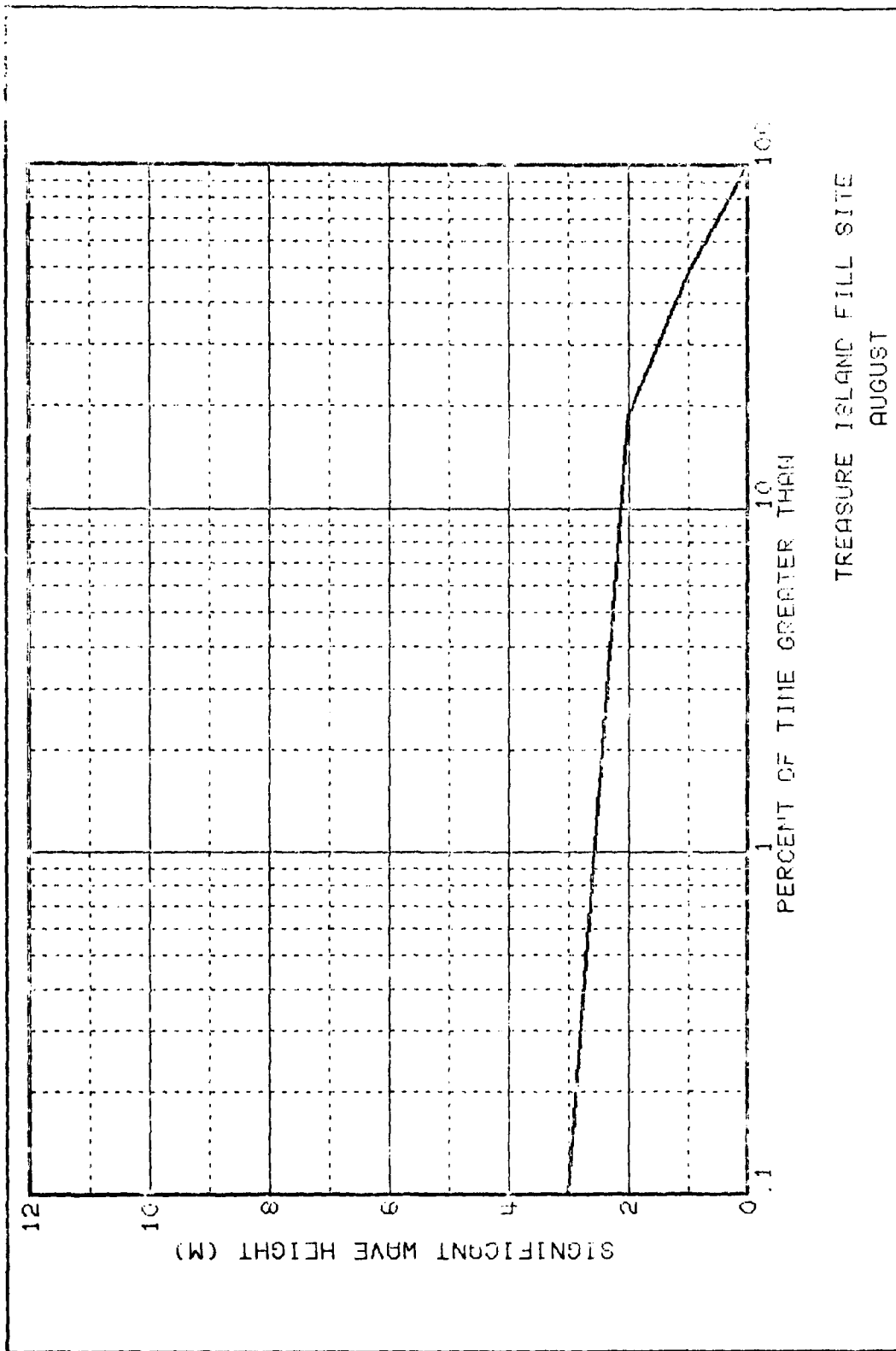
HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-5	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	54.97	1.18	1.42	0.00	0.00	0.42	0.00	0.00	0.00	2.53	60.52
01-02	21.30	4.35	1.52	0.00	0.00	0.17	0.00	0.00	0.00	1.59	28.93
02-03	7.84	2.11	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.55
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	89.11	7.35	3.53	0.00	0.00	0.59	0.00	0.00	0.00	0.00	



TREASURE ISLAND FILL SITE

CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

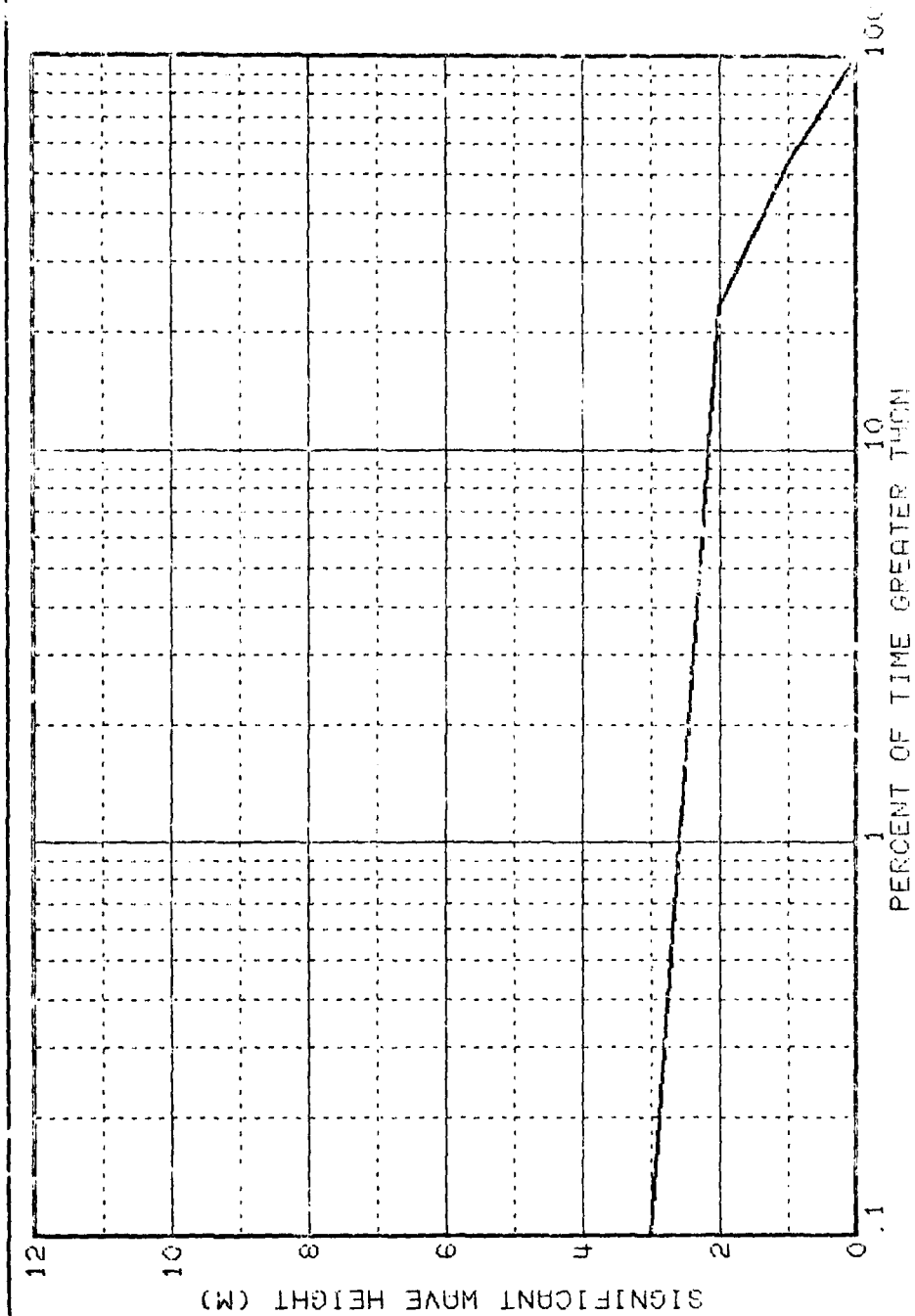
HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	43.80	2.98	0.58	0.00	0.00	0.00	0.00	0.58	0.89	2.93	51.76
01-02	18.86	7.16	1.96	0.00	0.00	0.36	0.00	0.00	0.26	1.09	29.70
02-03	11.47	4.23	1.43	0.57	0.57	0.21	0.00	0.00	0.00	0.00	18.54
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	74.13	14.37	4.02	0.57	0.57	0.57	0.00	0.50	1.15	4.02	



TREASURE ISLAND FILL SITE
AUGUST

TREASURE ISLAND FILL SITE
CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER

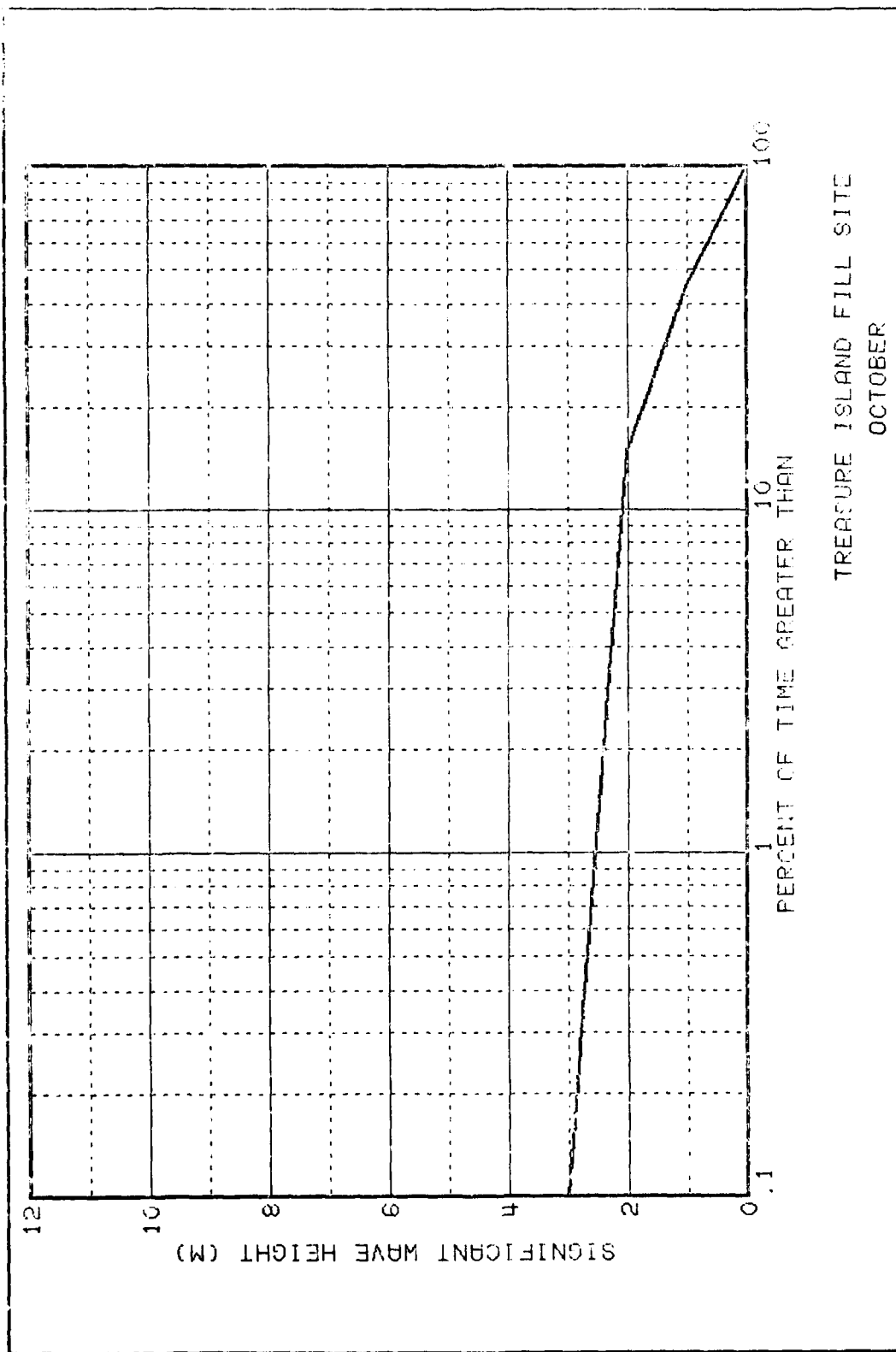
HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	40.26	4.02	0.49	0.00	0.55	0.00	0.48	0.00	0.00	1.21	47.00
01-02	21.41	4.67	2.41	0.00	0.14	0.00	0.21	0.00	0.09	0.86	29.78
02-03	7.30	7.17	4.00	4.14	0.00	0.00	0.00	0.00	0.60	0.00	25.21
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	68.97	15.93	5.99	4.14	0.69	0.00	0.69	0.00	0.69	2.07	



TREASURE ISLAND FILL SITE
SEPTEMBER

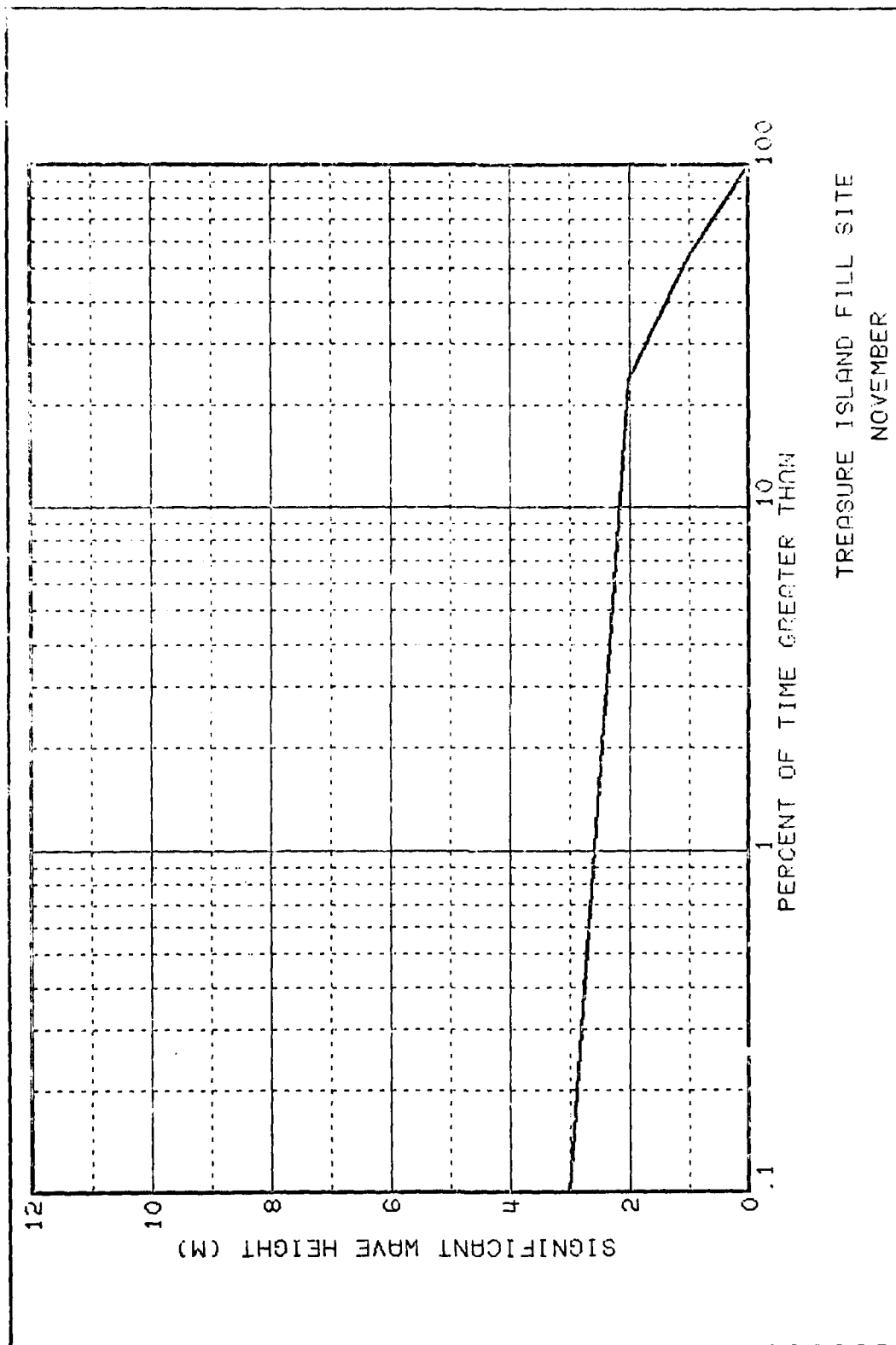
TREASURE ISLAND FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	45.61	7.92	0.00	0.00	0.00	0.00	0.00	0.00	0.59	0.99	55.11
01-02	14.21	12.70	0.99	0.81	0.00	0.00	0.35	0.00	0.22	0.71	29.93
02-03	4.70	3.57	3.85	1.61	0.00	0.00	0.46	0.00	0.00	0.72	14.91
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	80.52	24.19	4.99	2.42	0.00	0.00	0.91	0.00	0.81	2.42	



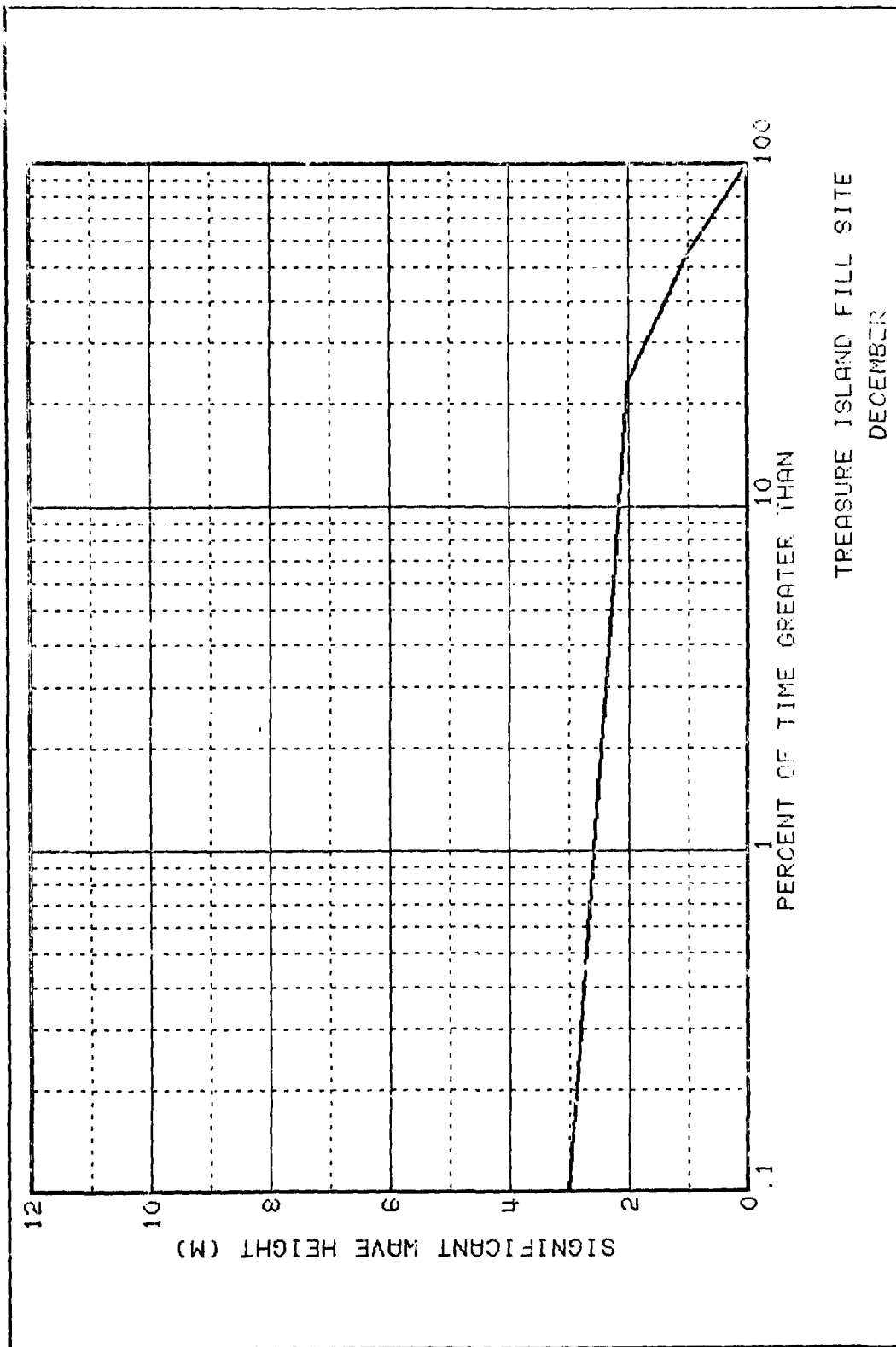
TREASURE ISLAND FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	36.60	6.93	0.20	0.00	0.00	0.00	0.00	0.00	0.00	1.74	45.48
01-02	18.41	9.48	1.28	0.00	0.35	1.14	0.00	0.00	0.00	0.29	30.57
02-03	8.50	7.91	1.22	3.36	1.68	0.28	0.00	0.00	0.00	0.00	23.57
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	63.51	24.32	2.70	3.36	2.03	2.03	0.00	0.00	0.00	0.00	



TREASURE ISLAND FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	36.41	3.31	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.33	45.32
01-02	13.94	12.54	2.84	1.21	0.00	0.00	0.73	0.00	0.00	0.56	31.22
02-03	4.11	6.23	7.60	1.07	1.73	0.29	0.16	0.00	0.00	0.00	22.00
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	54.47	27.98	10.71	2.00	1.73	0.29	0.60	0.00	0.00	0.00	



TREASURE ISLAND FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD

WAVE DIRECTION = 180

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
01-02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
02-03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00

TREASURE ISLAND FILL SITE
 CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 210

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	9.74	1.00	0.07	0.05	0.09	0.00	0.04	0.00	0.15	0.48		11.62
01-02	7.66	2.83	0.67	0.15	0.02	0.03	0.02	0.00	0.07	0.30		11.75
02-03	4.64	1.56	0.99	0.52	0.00	0.02	0.00	0.00	0.00	0.00		7.74
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	22.04	5.40	1.72	0.72	0.11	0.06	0.06	0.00	0.22	0.78		

TREASURE ISLAND FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 240

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	7.75	0.42	0.11	0.05	0.00	0.00	0.00	0.00	0.00	0.23	8.57
01-02	2.95	1.13	0.50	0.05	0.00	0.03	0.02	0.00	0.00	0.10	4.75
02-03	0.26	0.51	0.22	0.18	0.00	0.03	0.03	0.00	0.00	0.00	1.23
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	10.06	2.06	0.84	0.23	0.00	0.03	0.05	0.00	0.00	0.13	

TREASURE ISLAND FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 270

HEIGHT (M)		PERIOD (SEC)										TOTAL
		<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01		7.96	0.49	0.24	0.04	0.00	0.04	0.00	0.00	0.00	0.22	8.99
01-02		6.66	1.97	0.28	0.04	0.03	0.04	0.00	0.00	0.01	0.18	9.20
02-03		4.20	3.16	1.49	0.75	0.30	0.14	0.00	0.00	0.05	0.21	10.31
03-04		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		13.21	5.62	2.00	0.64	0.33	0.22	0.00	0.00	0.06	0.61	

TREASURE ISLAND FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 360

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	14.33	3.15	0.34	0.07	0.00	0.00	0.05	0.11	0.10	0.51	18.65	
01-02	0.70	2.78	1.19	0.15	0.00	0.00	0.05	0.00	0.01	0.11	5.00	
02-03	0.06	0.36	0.92	0.45	0.11	0.13	0.01	0.00	0.00	0.00	2.08	
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	15.03	6.23	2.45	0.67	0.11	0.22	0.11	0.11	0.11	0.62		

TREASURE ISLAND FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 330

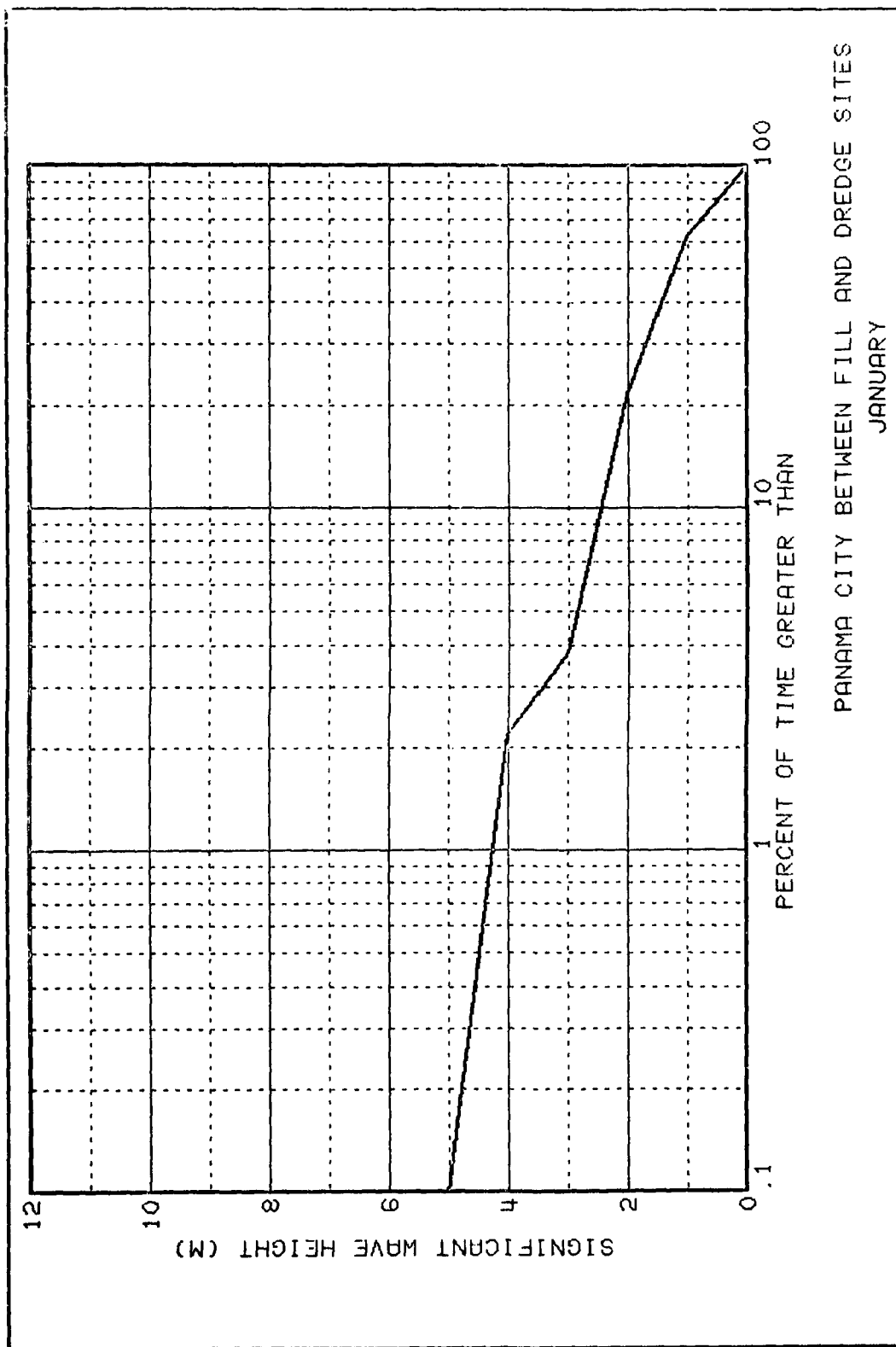
HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01-02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02-03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

APPENDIX H: AVERAGE WAVE CLIMATE AT PANAMA CITY, FLA.

1. Appendix H contains the following information for the Panama City, Fla., project site:
 - a. Tabulations of monthly percent occurrence of wave-height/period combinations.
 - b. Tabulations of annual percent occurrence by azimuth direction of wave-height/period combinations.
 - c. Plots of monthly significant wave-height occurrence in terms of the total percent time per month that these heights are exceeded.

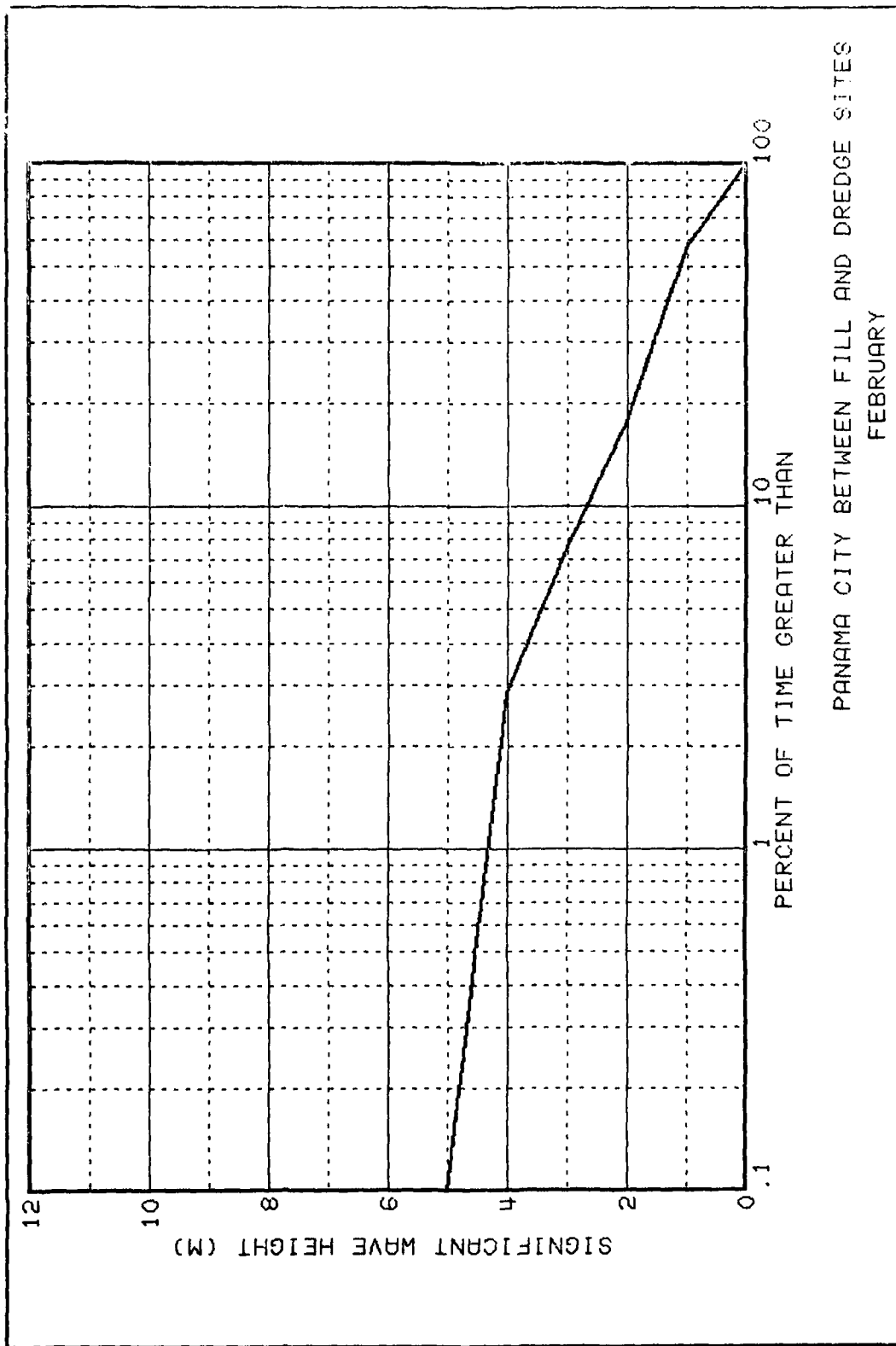
PANAMA CITY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JANUARY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	26.58	6.06	0.00	0.00	2.94	0.00	0.00	0.00	0.00	2.03	37.61
01-02	33.12	4.42	0.51	0.00	1.86	0.00	0.00	0.00	0.00	0.91	40.82
02-03	7.94	3.81	2.43	0.00	1.08	0.00	0.00	0.00	0.00	2.52	17.79
03-04	0.00	0.42	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.42	1.59
04-05	0.00	0.00	2.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.19
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	67.65	14.71	5.03	0.00	5.03	0.00	0.00	0.00	0.00	5.00	



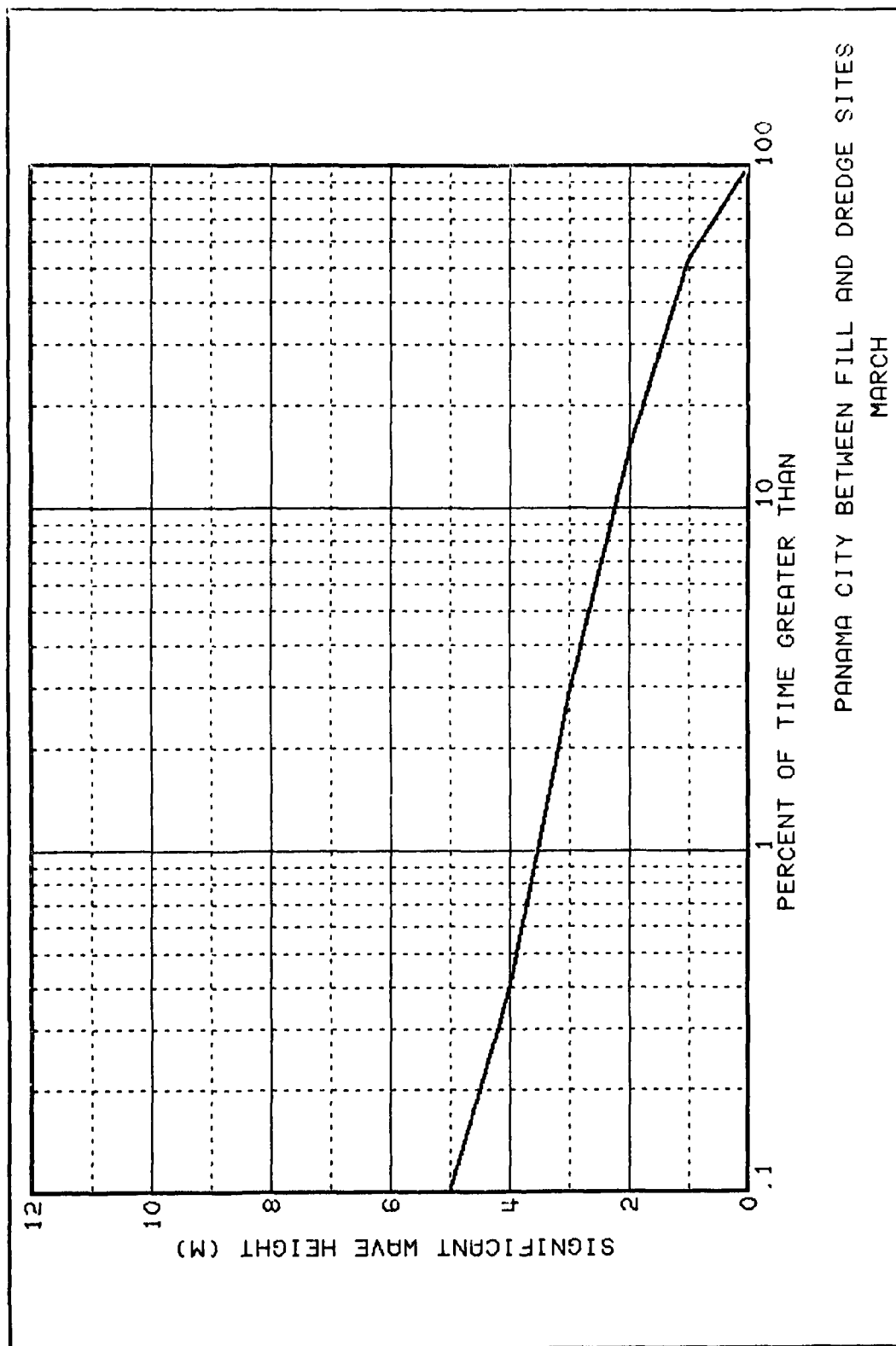
PANAMA CITY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	40.31	2.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.03
01-02	36.53	1.96	0.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.27
02-03	3.16	4.22	2.08	0.65	0.00	0.00	0.00	0.00	0.00	0.00	10.10
03-04	0.00	2.52	0.00	2.21	0.00	0.00	0.00	0.00	0.00	0.00	4.73
04-05	0.00	0.00	2.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.86
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	80.00	11.43	5.71	2.86	0.00	0.00	0.00	0.00	0.00	0.00	



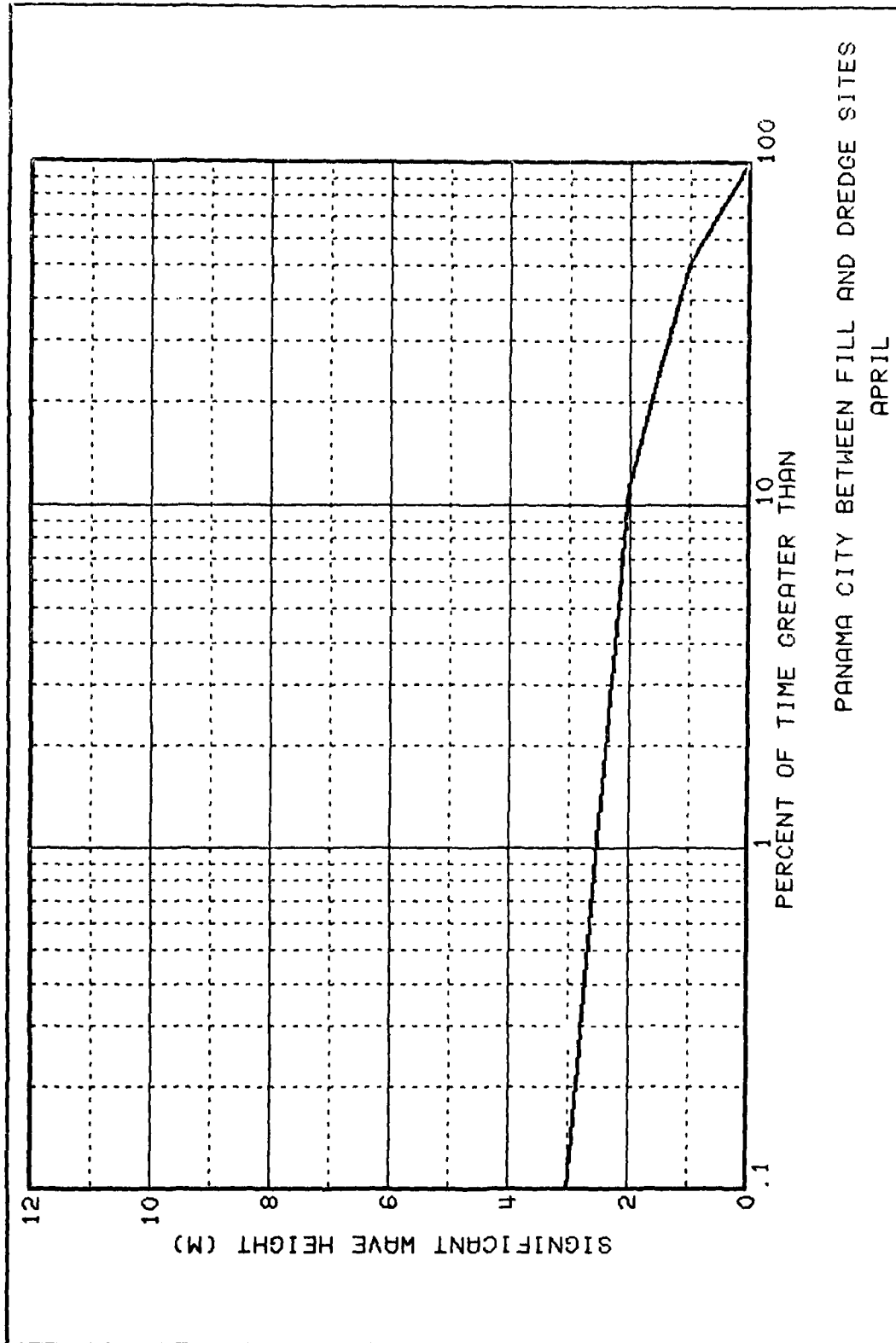
PANAMA CITY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MARCH

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	44.51	2.40	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.24
01-02	26.77	7.20	3.73	0.31	0.00	0.00	0.00	0.00	0.00	0.00	38.01
02-03	2.18	4.69	2.06	1.73	0.00	1.24	0.00	0.00	0.00	0.00	11.91
03-04	0.00	1.65	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	2.45
04-05	0.00	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	73.47	16.33	6.12	2.04	0.00	2.04	0.00	0.00	0.00	0.00	0.00



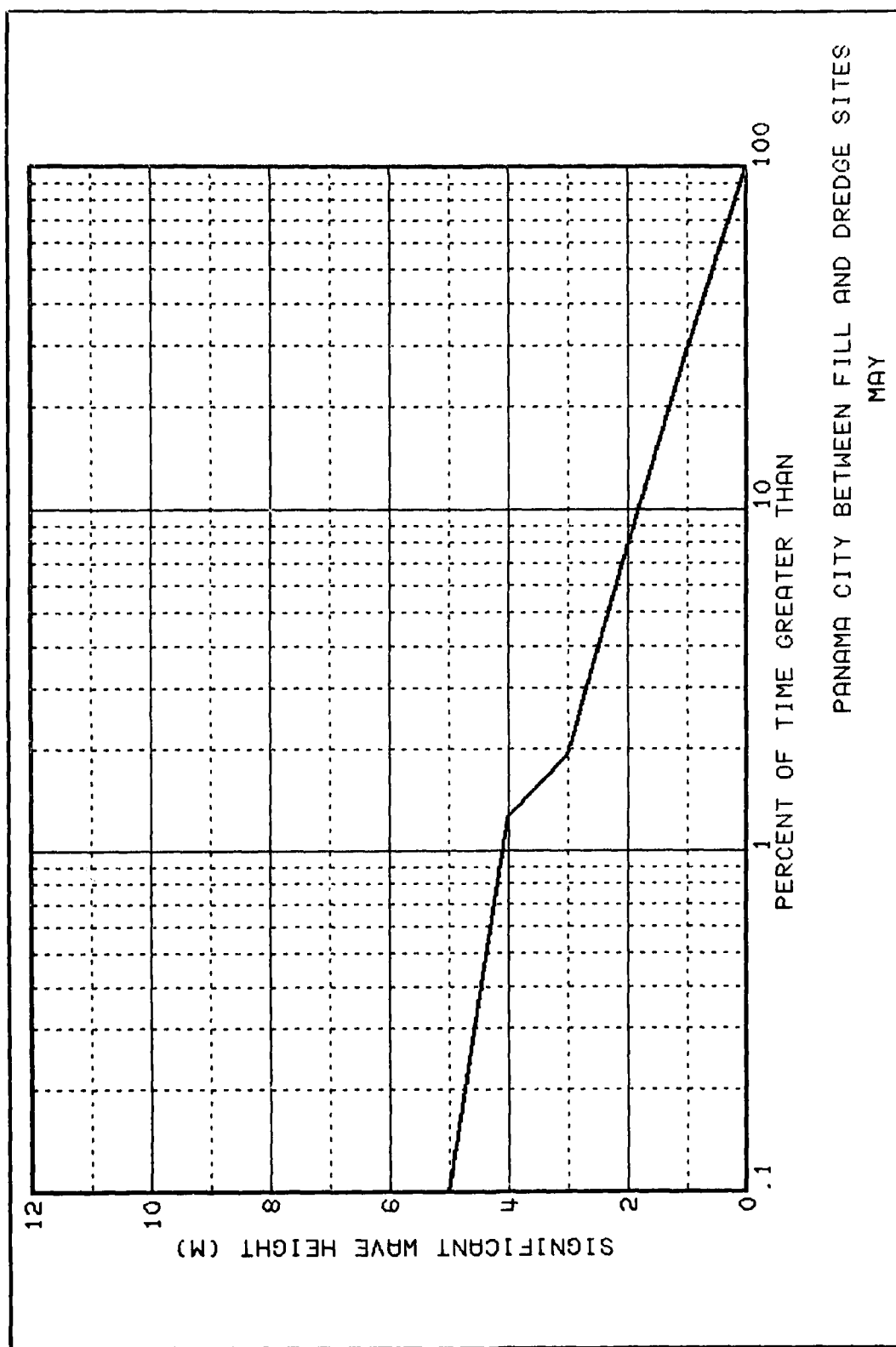
PANAMA CITY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR APRIL

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	44.71	2.50	0.22	0.00	0.00	0.00	0.00	0.00	0.00	1.98	49.41
01-02	25.91	9.59	3.15	0.00	0.00	0.00	0.00	0.00	0.00	0.52	39.17
02-03	1.88	5.41	4.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.43
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	72.50	17.50	7.50	0.00	0.00	0.00	0.00	0.00	0.00	2.50	



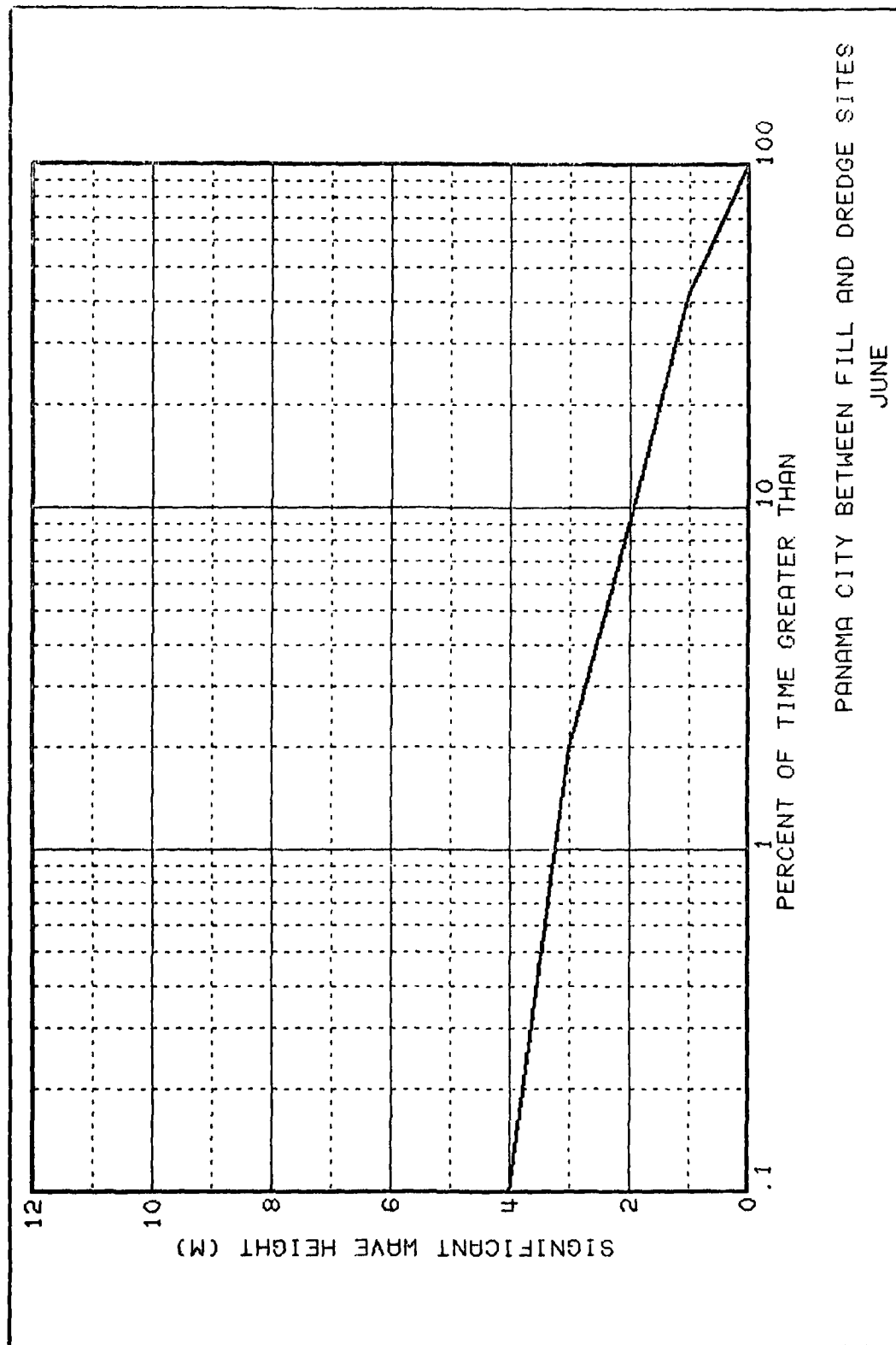
PANAMA CITY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	62.14	3.48	0.43	0.00	0.00	0.00	0.00	0.00	1.46	3.23	70.74
01-02	10.93	6.00	3.42	0.00	0.00	0.00	0.00	0.00	0.47	0.61	21.43
02-03	0.00	5.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.90
03-04	0.00	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67
04-05	0.00	1.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.25
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	73.03	17.31	3.85	0.00	0.00	0.00	0.00	0.00	1.92	3.85	



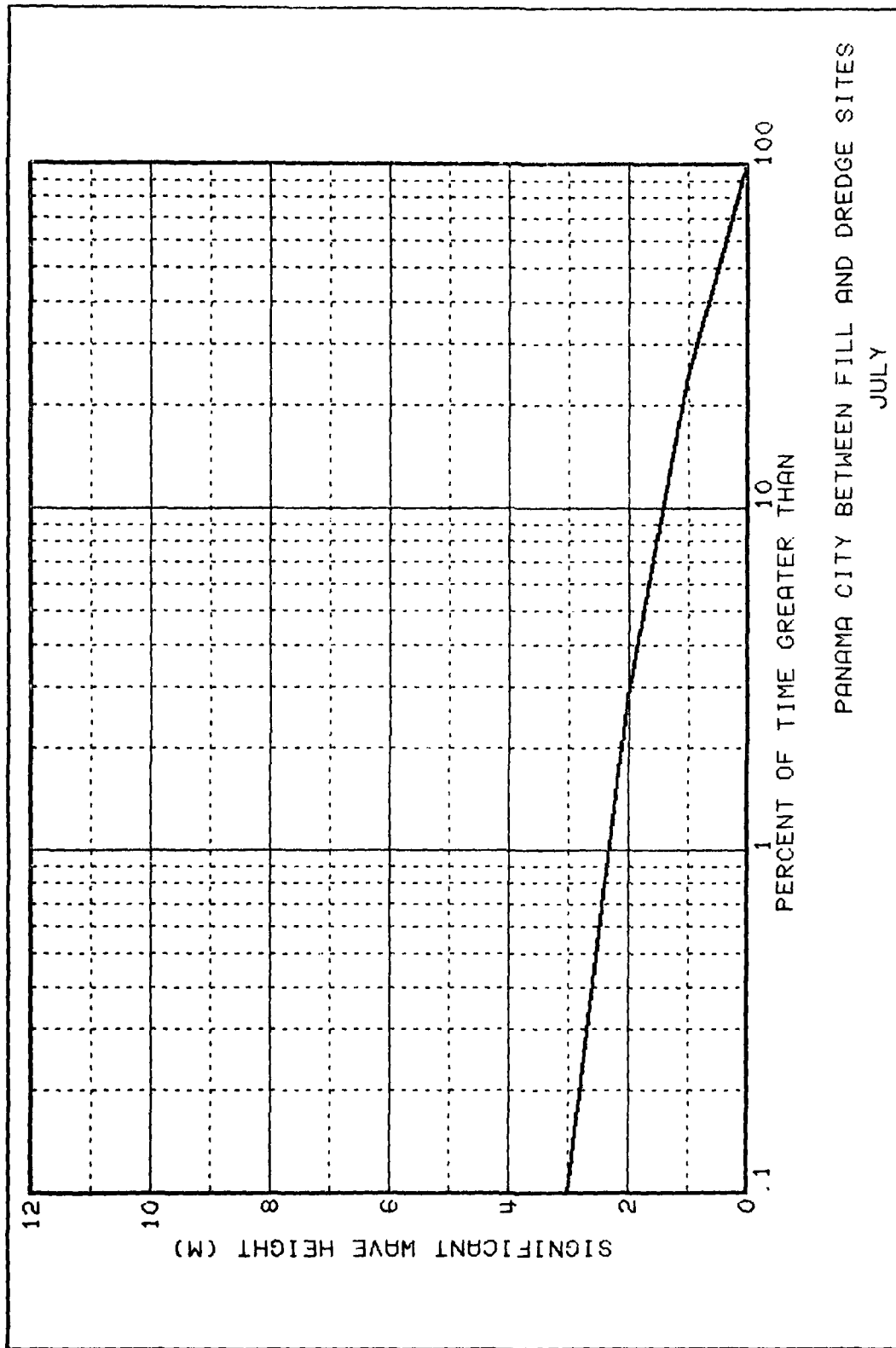
PANAMA CITY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	57.26	0.37	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57.85
01-02	21.63	7.73	2.64	1.19	0.00	0.00	0.00	0.00	0.00	0.00	33.20
02-03	1.11	5.61	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	6.96
03-04	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.99
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	80.00	15.71	2.86	1.43	0.00	0.00	0.00	0.00	0.00	0.00	



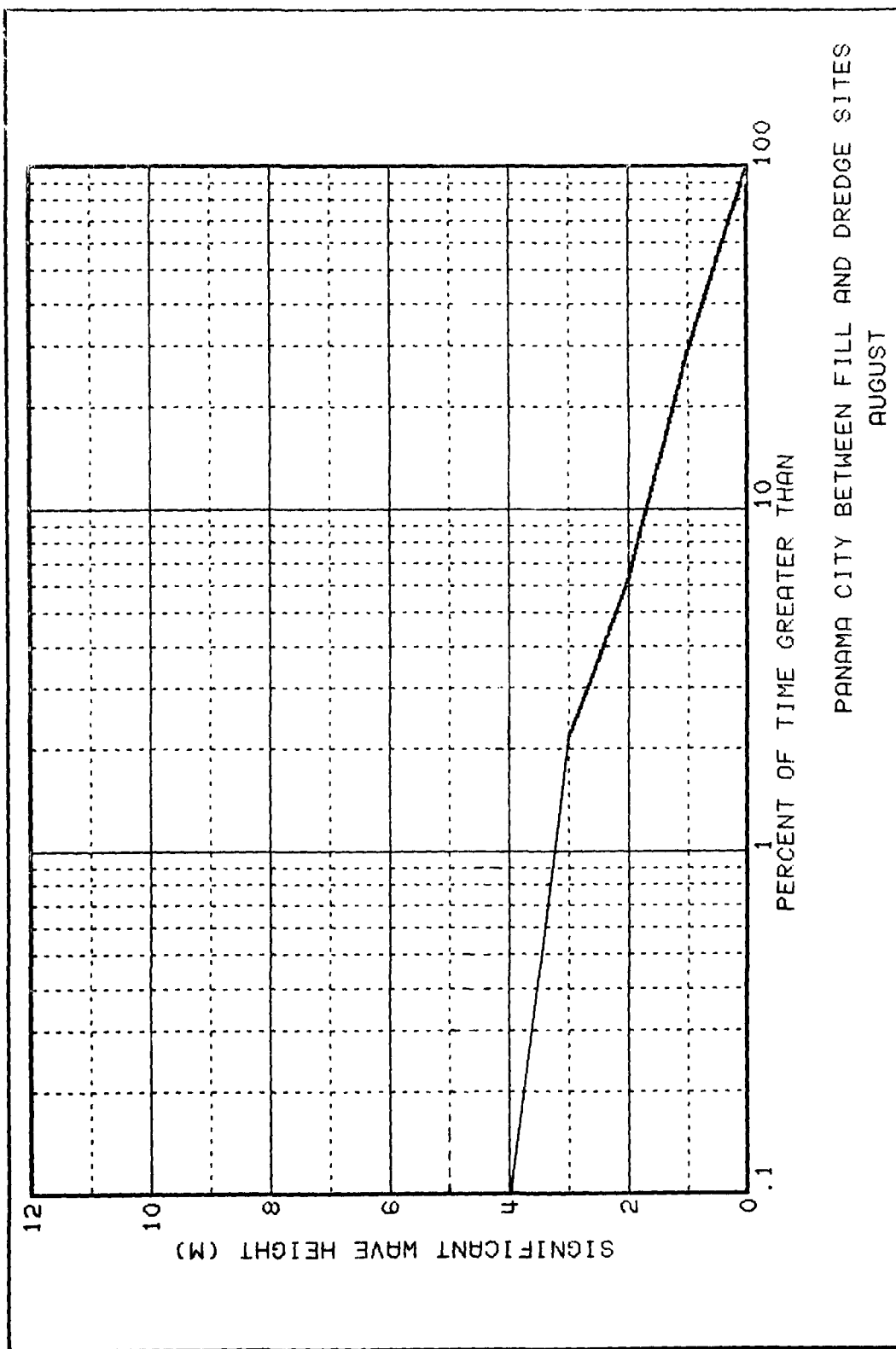
PANAMA CITY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	71.52	0.89	1.40	0.00	0.00	0.00	0.00	0.00	1.00	1.02	75.84
01-02	17.68	2.14	1.07	0.00	0.00	0.00	0.00	0.00	0.23	0.21	21.33
02-03	0.93	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.83
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	90.13	4.94	2.47	0.00	0.00	0.00	0.00	0.00	1.23	1.23	



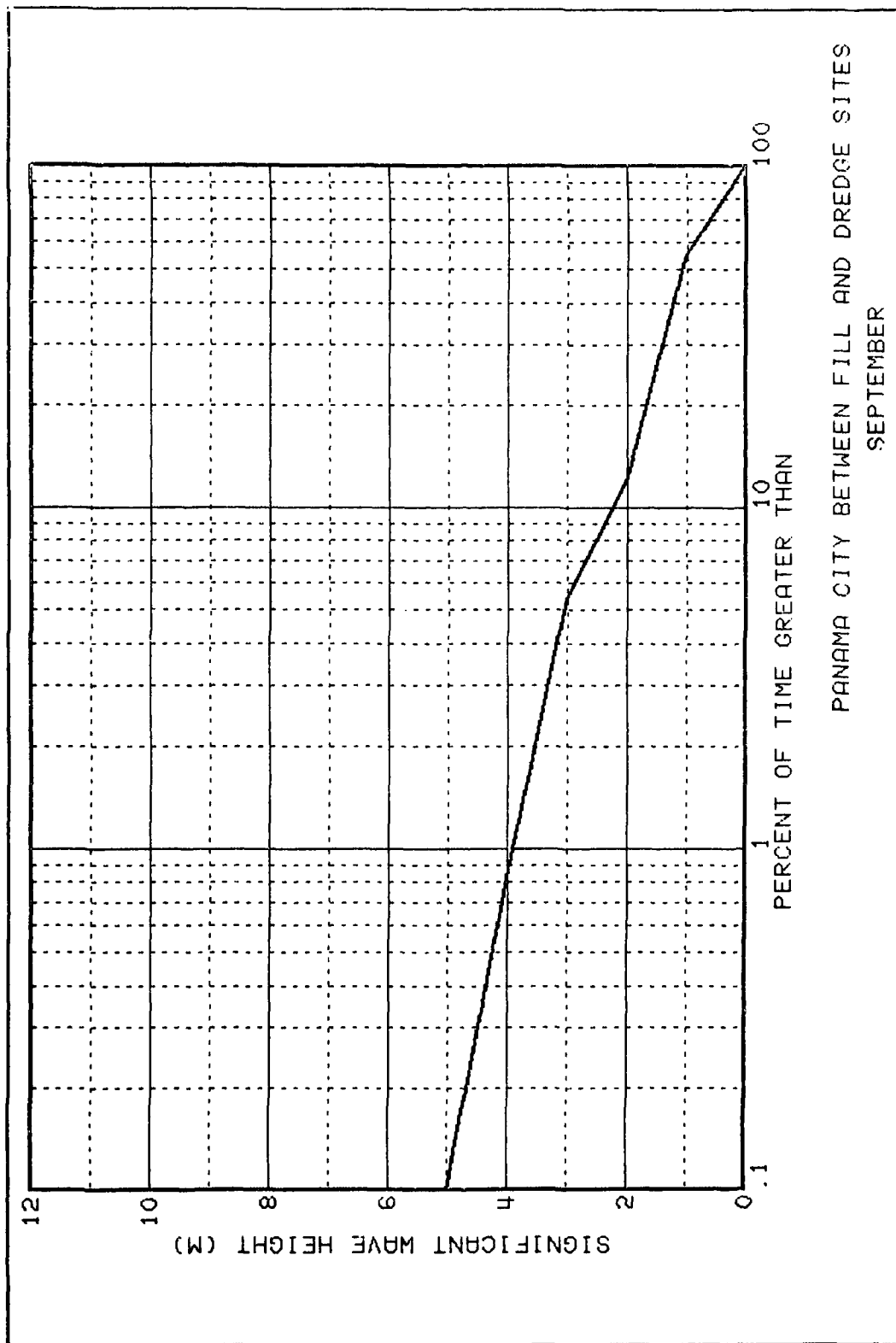
PANAMA CITY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	50.15	3.97	0.00	0.00	0.00	0.00	0.00	5.22	2.09	0.00	71.43
01-02	17.40	3.77	0.00	0.00	0.00	0.00	0.00	1.16	0.04	0.00	22.37
02-03	3.31	0.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.08
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	2.13	0.00	0.00	0.00	0.00	0.00	0.00	2.13
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	80.85	3.51	0.00	2.13	0.00	0.00	0.00	6.38	2.13	0.00	



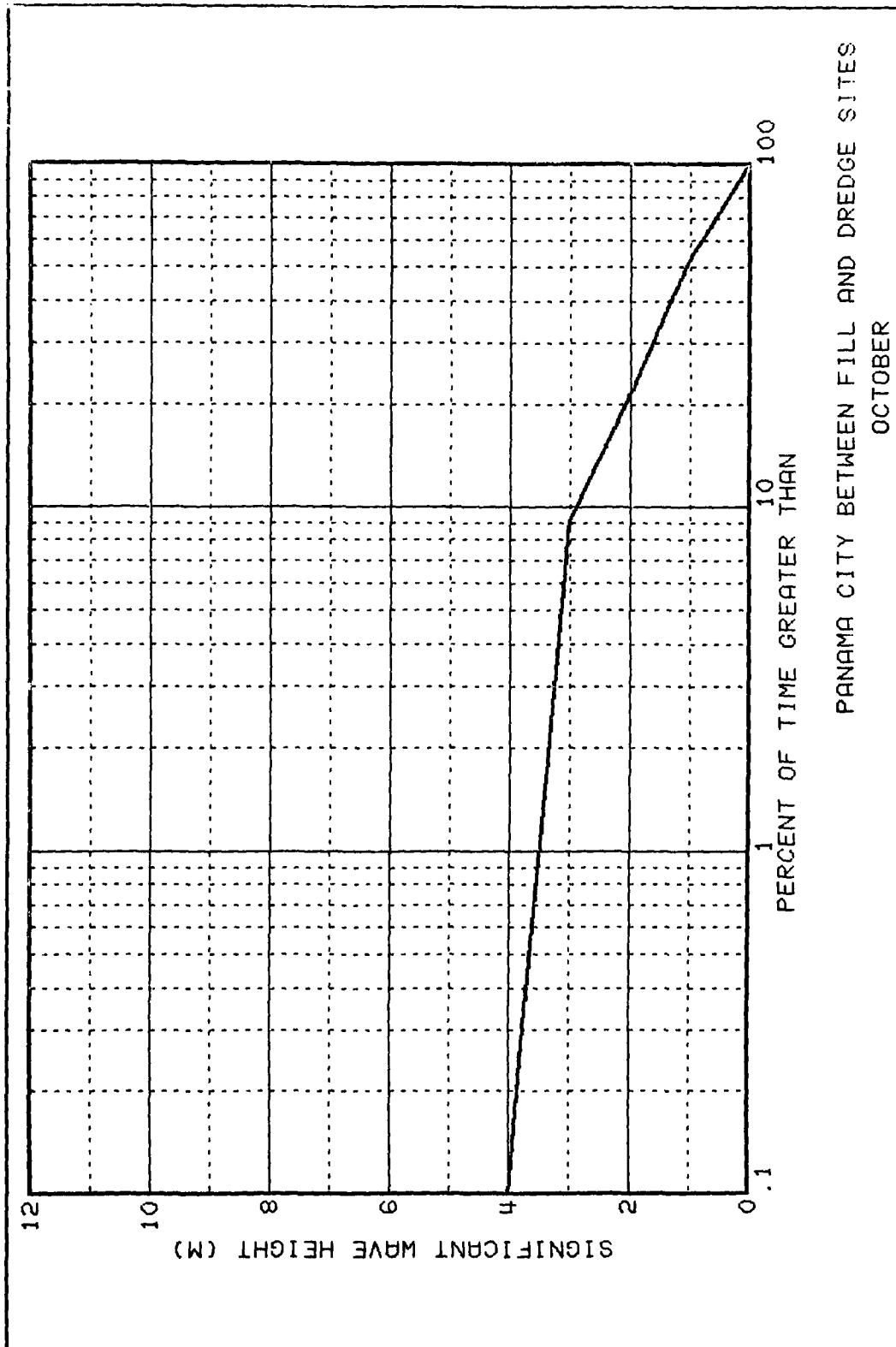
PANAMA CITY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	42.78	1.46	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.36
01-02	33.13	7.79	2.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.62
02-03	1.05	1.92	3.00	0.61	0.00	0.00	0.00	0.00	0.00	0.00	6.58
03-04	0.00	1.00	1.00	2.62	0.00	0.00	0.00	0.00	0.00	0.00	4.62
04-05	0.00	0.00	0.00	0.83	0.00	0.00	0.00	0.00	0.00	0.00	0.83
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	77.03	12.16	6.75	4.05	0.00	0.00	0.00	0.00	0.00	0.00	



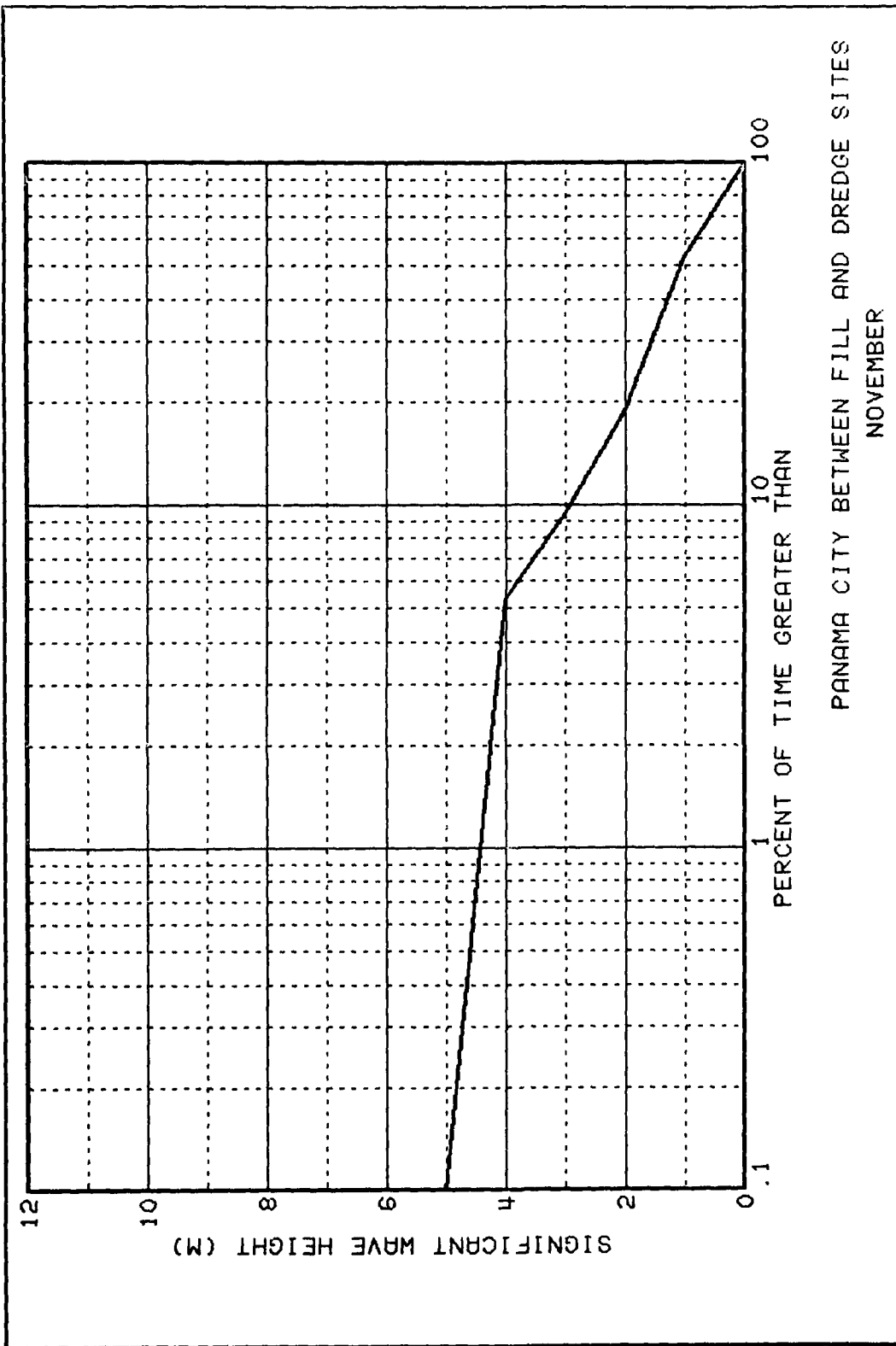
PANAMA CITY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	47.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		47.39
01-02	31.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		31.49
02-03	4.46	7.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		12.11
03-04	0.00	9.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		9.02
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	83.33	16.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00



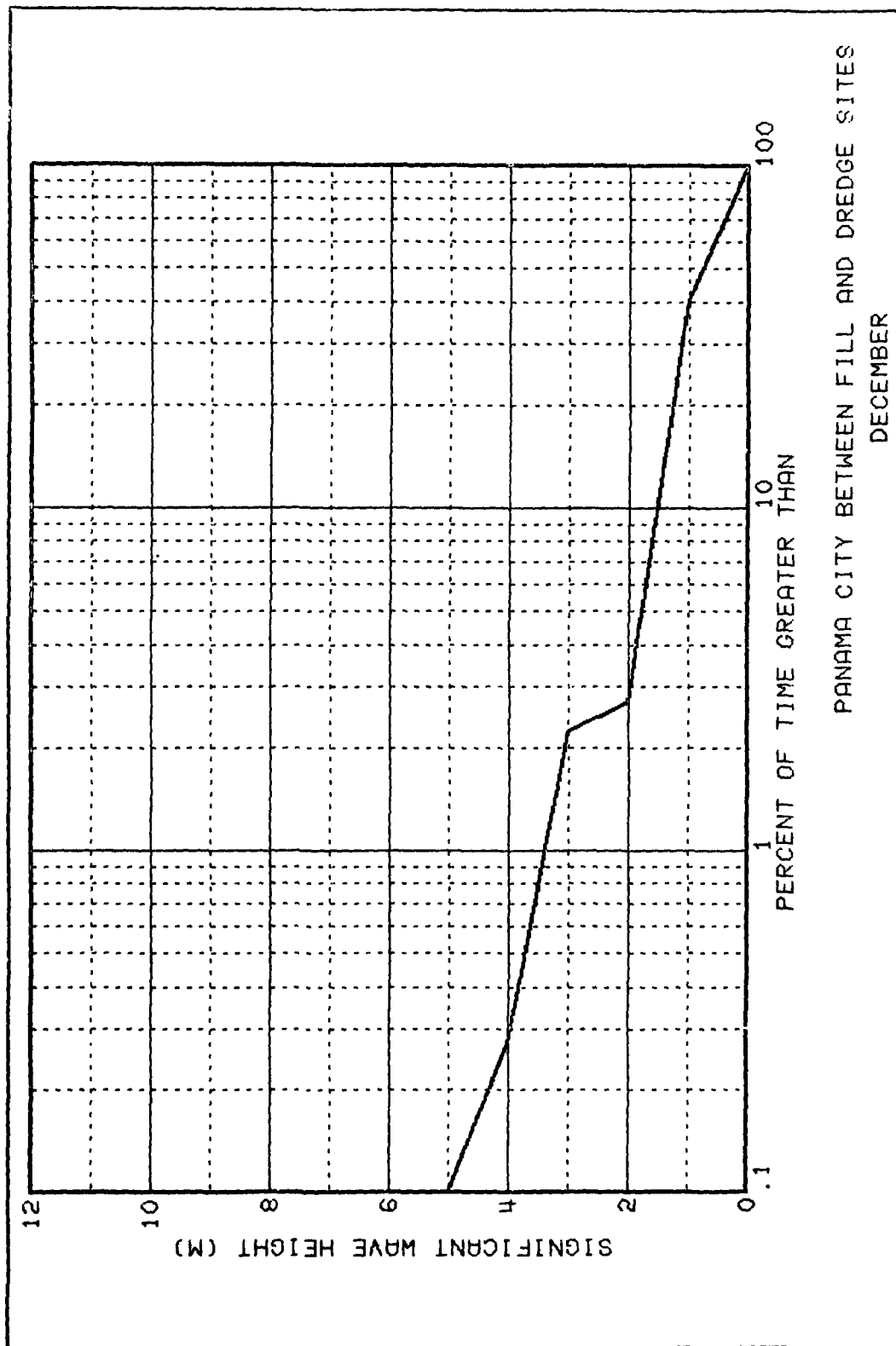
PANAMA CITY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	41.72	0.32	0.00	4.63	0.00	0.00	0.00	0.00	0.00	0.00	46.67	
01-02	21.24	9.78	0.64	2.78	0.00	0.00	0.00	0.00	0.00	0.00	34.45	
02-03	0.00	6.41	3.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.47	
03-04	0.00	4.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.07	
04-05	0.00	5.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.34	
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	62.96	25.93	3.70	7.41	0.00	0.00	0.00	0.00	0.00	0.00		



PANAMA CITY BETWEEN FILL AND DREDGE SITES
CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	TOTAL
00-01	48.15	7.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.10	59.87
01-02	30.23	5.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31	37.43
02-03	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47
03-04	0.00	1.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.96
04-05	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	78.33	15.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.40	



PANAMA CITY BETWEEN FILL AND DREDGE SITES
 CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 150

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	12.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.45
01-02	6.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.07
02-03	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	12.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

PANAMA CITY BETWEEN FILL AND DREDGE SITES
 CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 180

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	7.23	0.98	0.24	0.00	0.00	0.00	0.00	0.28	0.14	0.29	9.16
01-02	5.40	3.32	0.92	0.03	0.00	0.00	0.00	0.07	0.03	0.06	9.84
02-03	0.53	2.02	0.82	0.23	0.00	0.11	0.00	0.00	0.00	0.00	3.70
03-04	0.00	1.02	0.13	0.34	0.00	0.07	0.00	0.00	0.00	0.00	1.56
04-05	0.00	0.37	0.18	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.83
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	13.16	7.72	2.28	0.88	0.00	0.18	0.00	0.35	0.18	0.35	

PANAMA CITY BETWEEN FILL AND DREDGE SITES
 CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 210

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	8.46	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	8.96
01-02	4.56	0.57	0.12	0.15	0.00	0.00	0.00	0.00	0.00	0.11	5.50
02-03	0.14	0.61	0.06	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.83
03-04	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13
04-05	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	13.16	1.58	0.18	0.18	0.00	0.00	0.00	0.00	0.00	0.35	

PANAMA CITY BETWEEN FILL AND DREDGE SITES
 CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 240

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	7.68	0.75	0.17	0.00	0.00	0.00	0.00	0.15	0.21	0.43		9.37
01-02	2.01	1.14	0.40	0.00	0.00	0.00	0.00	0.00	0.05	0.09		4.76
02-03	0.73	0.33	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.15		1.63
03-04	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.03		0.51
04-05	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.16
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
10-11	10.00	3.45	1.00	0.10	0.00	0.00	0.00	0.10	0.35	0.70		

PANAMA CITY BETWEEN FILL AND DREDGE SITES
 CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 270

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	7.72	0.45	0.03	0.22	0.18	0.00	0.00	0.00	0.00	0.00		8.59
01-02	2.88	0.61	0.20	0.13	0.11	0.00	0.00	0.00	0.00	0.00		3.94
02-03	0.27	0.17	0.12	0.00	0.06	0.00	0.00	0.00	0.00	0.00		0.63
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	10.88	1.23	0.25	0.25	0.25	0.00	0.00	0.00	0.00	0.00		0.00

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
WASHINGTON, D. C. 20250

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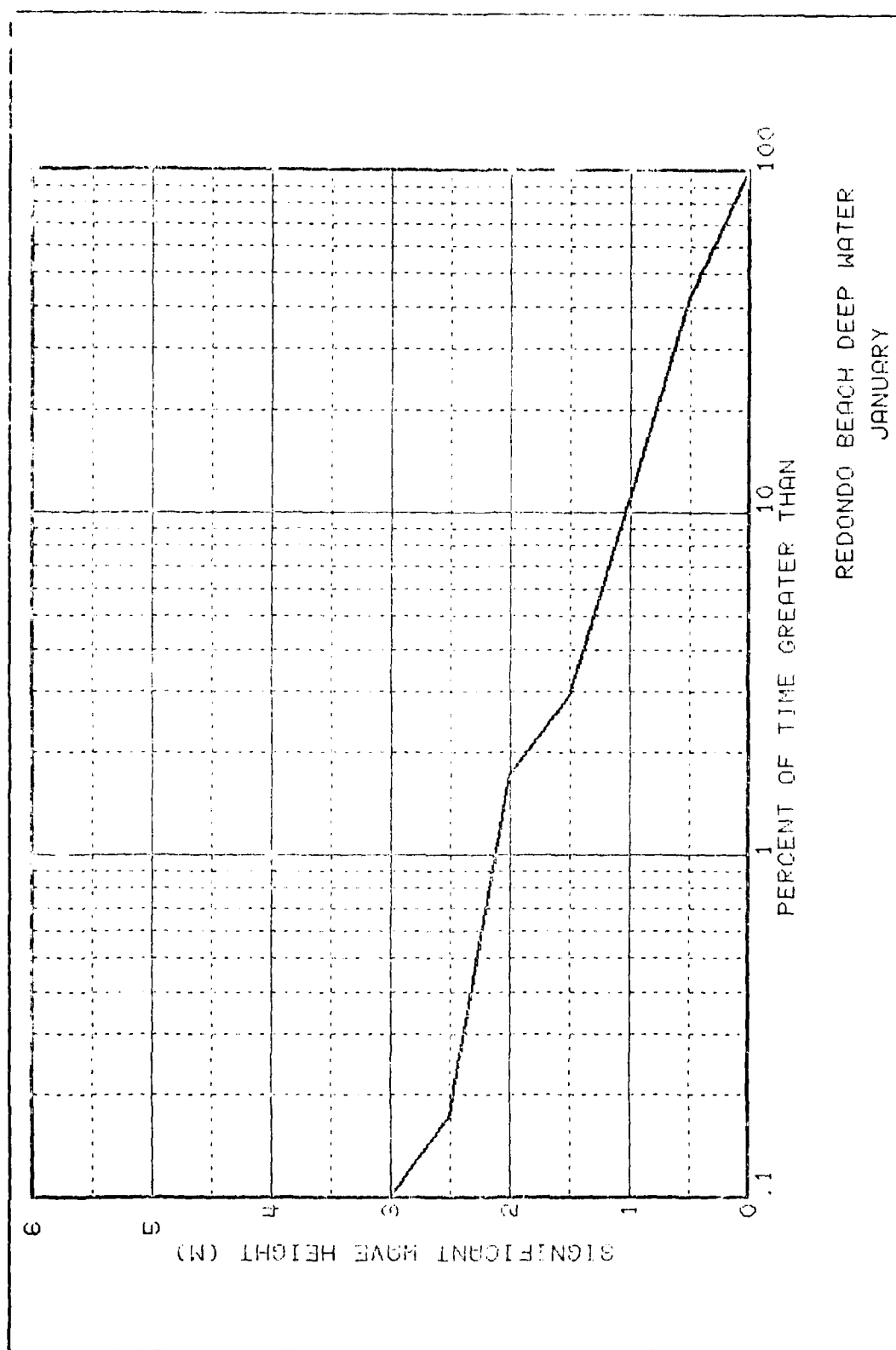
APPENDIX I: AVERAGE WAVE CLIMATE AT REDONDO BEACH, CALIF.

1. Appendix I contains two sets of the following information. One set is for the sand borrow area at Redondo Beach, Calif., (deep water), and the other is for the fill area:

- a. Tabulations of monthly percent occurrence of wave-height/period combinations.
- b. Tabulations of annual percent occurrence by azimuth direction of wave-height/period combinations.
- c. Plots of monthly significant wave-height occurrence in terms of the total percent time per month that these heights are exceeded.

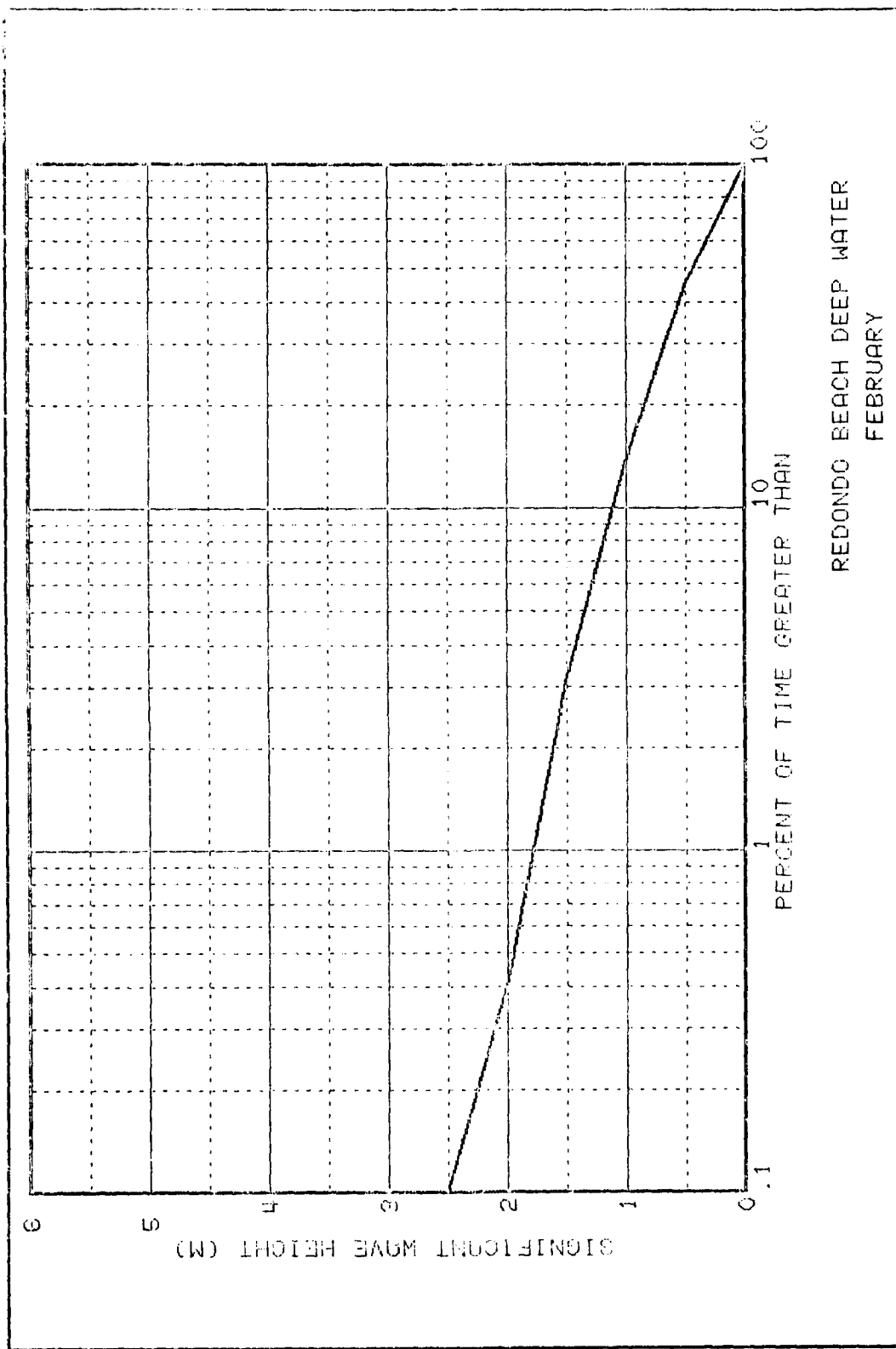
REDONDO BEACH DEEP WATER
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JANUARY

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5	2.72	2.72	3.24	4.42	25.71	13.46	5.62	0.00	57.90
0.5-1.0	10.05	4.61	1.70	2.22	4.77	4.77	3.07	0.00	31.17
1.0-1.5	3.53	3.06	1.36	0.00	0.00	0.00	0.00	0.00	8.01
1.5-2.0	0.00	1.03	0.00	0.17	0.00	0.00	0.00	0.00	1.20
2.0-2.5	0.00	1.03	0.52	0.00	0.00	0.00	0.00	0.00	1.55
2.5-3.0	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.17
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	16.37	12.44	6.93	6.81	30.48	18.22	8.69	0.00	



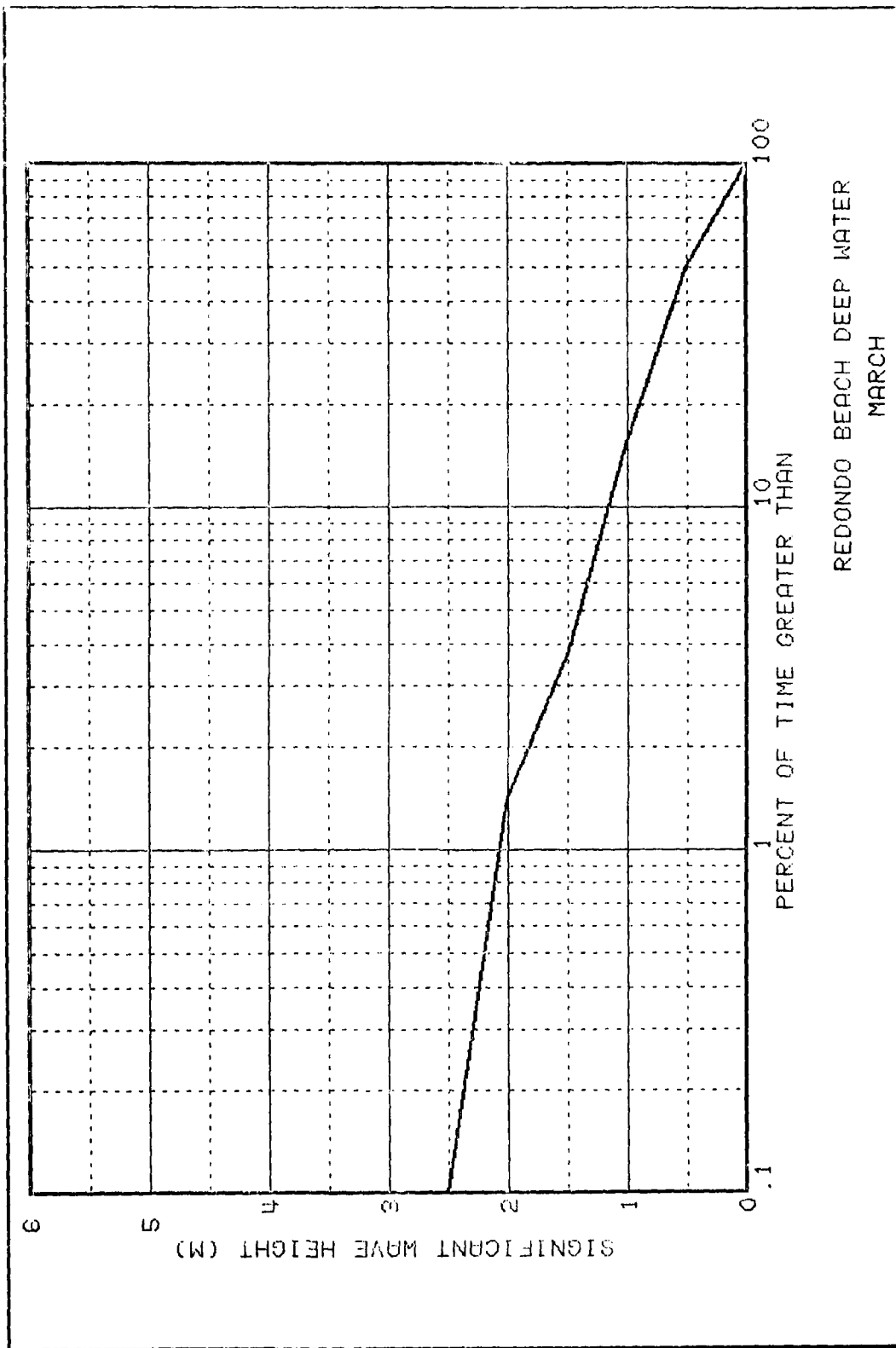
REDONDO BEACH DEEP WATER
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18			
0.0-0.5	0.78	4.68	1.36	5.07	26.90	11.31	5.46	0.00			55.56
0.5-1.0	11.88	2.52	2.74	2.15	4.29	6.04	1.18	0.00			20.80
1.0-1.5	3.30	6.04	1.18	0.00	0.00	0.00	0.00	0.00			10.52
1.5-2.0	0.40	1.94	0.20	0.00	0.20	0.00	0.00	0.00			2.74
2.0-2.5	0.20	0.20	0.00	0.00	0.00	0.00	0.00	0.00			0.40
2.5-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00
TOTAL	16.55	15.38	5.47	7.23	31.39	17.35	6.63	0.00			



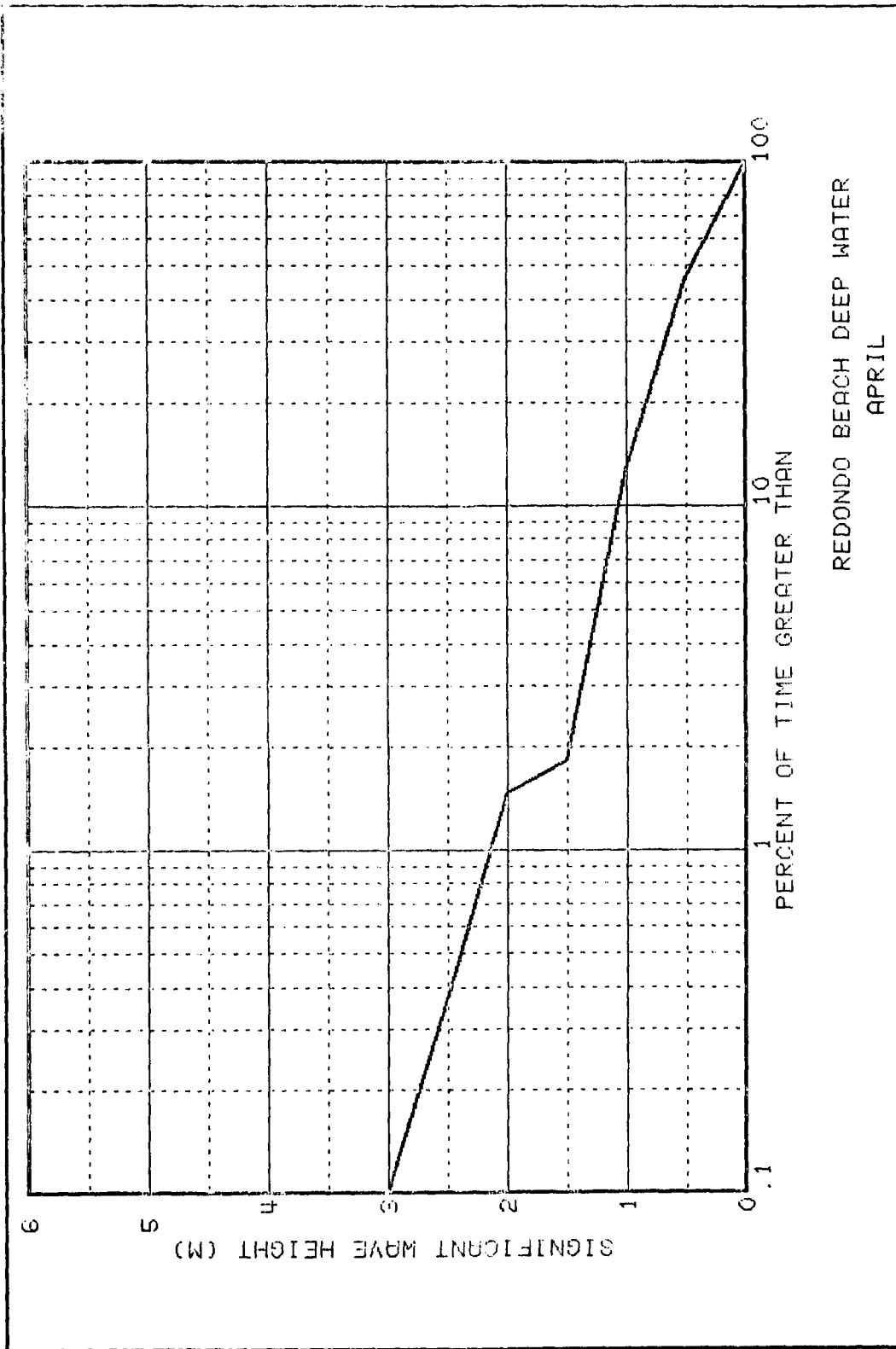
REDONDO BEACH DEEP WATER
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MARCH

HEIGHT (M)	4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5	2.12	9.00	2.83	3.89	21.19	9.53	0.89	0.00	49.45
0.5-1.0	16.78	6.69	1.25	1.23	2.86	3.53	2.84	0.00	34.98
1.0-1.5	5.13	5.13	0.18	0.18	0.00	0.00	1.23	0.00	11.84
1.5-2.0	0.00	2.30	0.00	0.00	0.00	0.00	0.00	0.00	2.30
2.0-2.5	0.00	0.72	0.71	0.00	0.00	0.00	0.00	0.00	1.43
2.5-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	24.02	23.24	4.96	5.31	23.65	13.06	4.96	0.00	



REDONDO BEACH DEEP WATER
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR APRIL

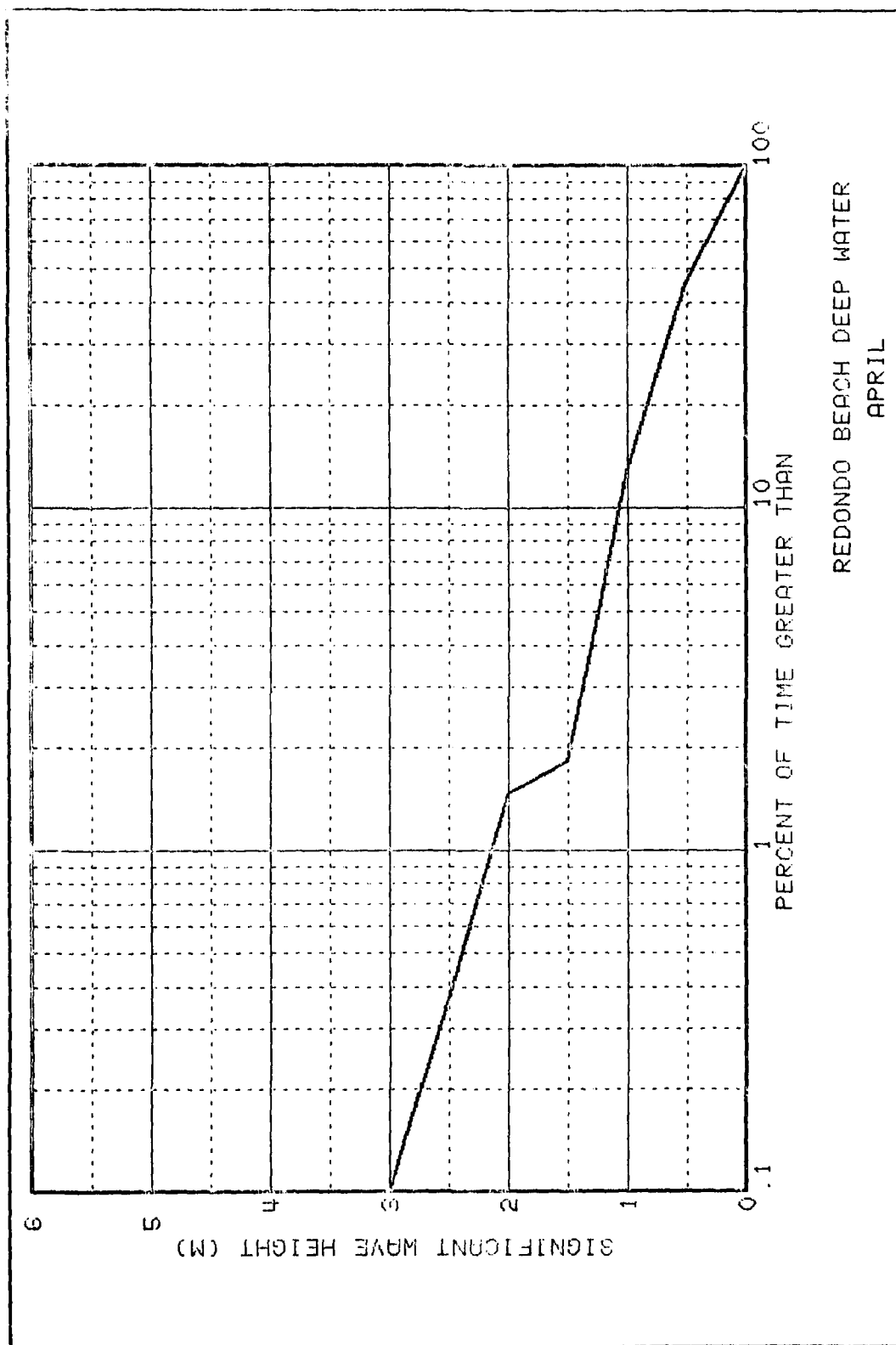
HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5	2.34	16.37	3.76	3.23	19.59	7.73	0.90	0.00	53.92
0.5-1.0	20.50	5.03	2.69	0.92	1.25	2.88	0.00	0.00	33.27
1.0-1.5	6.82	3.42	0.18	0.00	0.18	0.00	0.37	0.00	10.98
1.5-2.0	0.00	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.37
2.0-2.5	0.00	0.73	0.37	0.00	0.00	0.00	0.00	0.00	1.10
2.5-3.0	0.00	0.00	0.37	0.00	0.00	0.00	0.00	0.00	0.37
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	29.66	25.92	7.37	4.14	21.03	10.60	1.27	0.00	



REDONDO BEACH DEEP WATER

CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

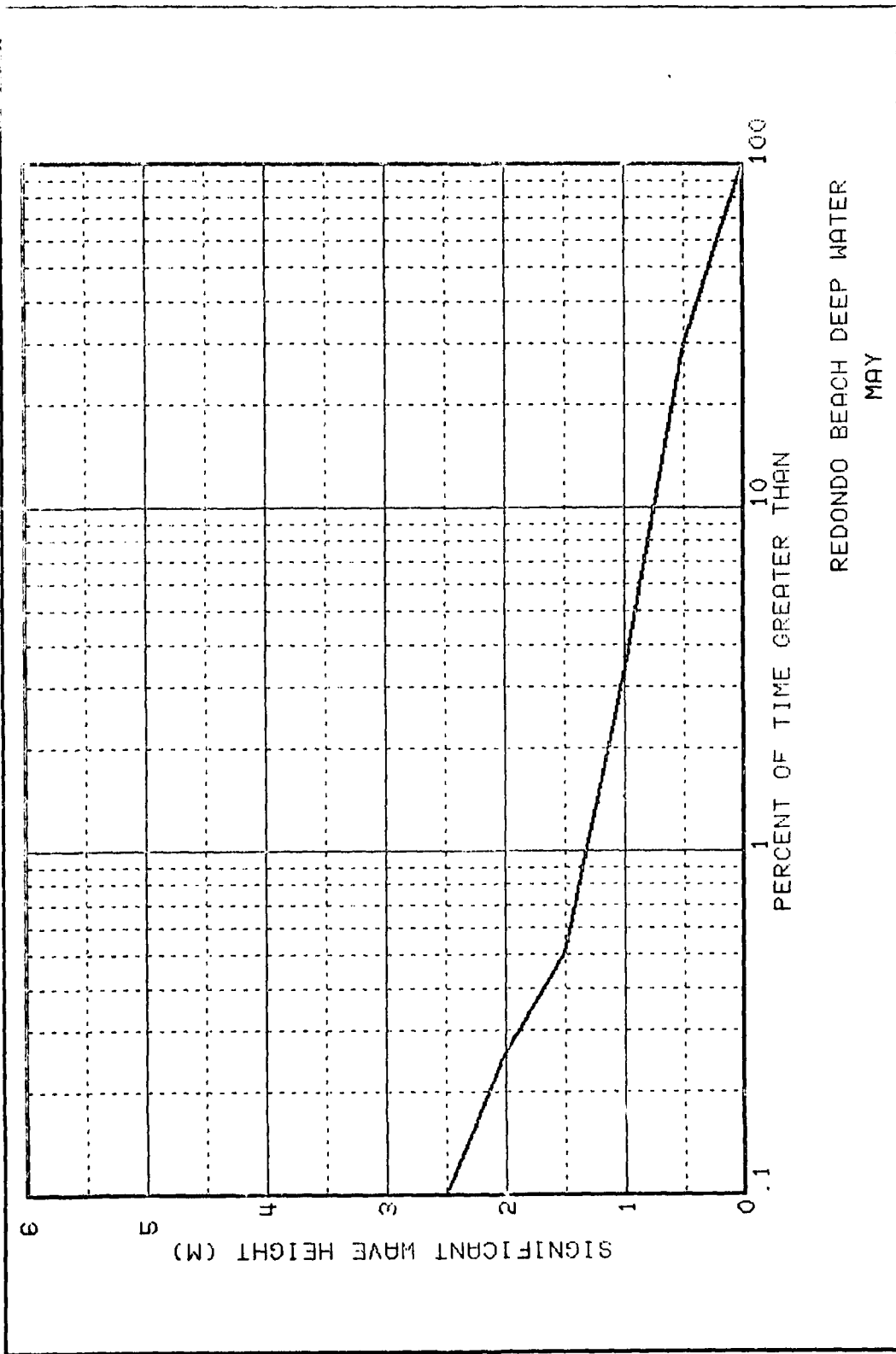
HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18
0.0-0.5	0.82	12.54	2.25	0.50	20.69	23.38	7.14	1.14
0.5-1.0	14.54	3.01	1.13	0.19	3.51	3.09	0.96	0.14
1.0-1.5	1.82	0.88	0.00	0.06	0.00	0.00	0.00	0.00
1.5-2.0	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.25
2.0-2.5	0.00	0.13	0.13	0.00	0.00	0.00	0.00	0.26
2.5-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	17.18	16.81	5.21	0.76	24.20	26.42	8.09	1.23



REDONDO BEACH DEEP WATER

CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

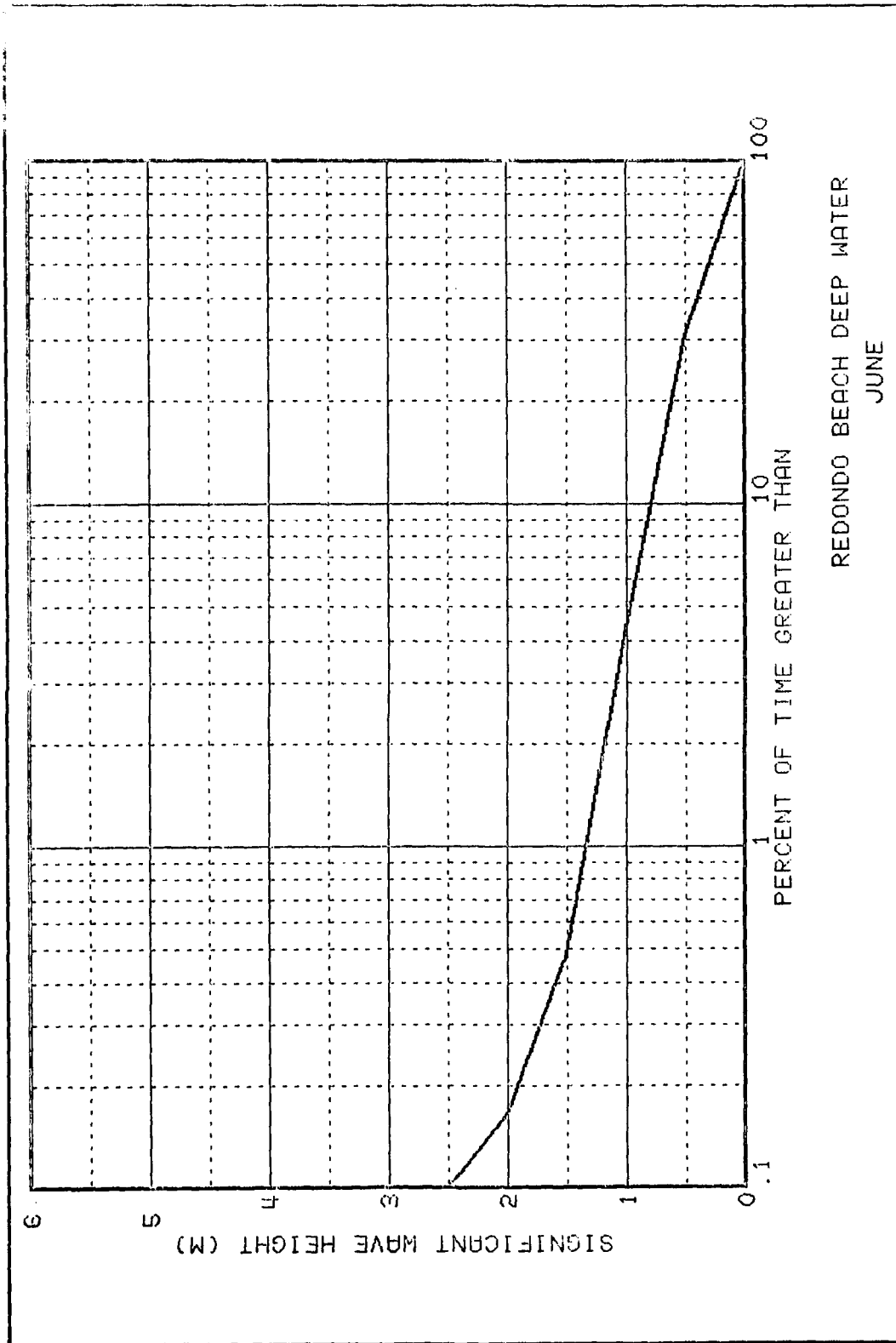
HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-8	8-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.82	12.54	3.23	0.50	20.69	23.22	7.14	1.14	70.15
0.5-1.0	14.54	3.01	1.13	0.19	3.51	3.09	0.96	0.14	26.52
1.0-1.5	1.32	0.22	0.00	0.06	0.00	0.00	0.00	0.00	2.76
1.5-2.0	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.25
2.0-2.5	0.00	0.13	0.13	0.00	0.00	0.00	0.00	0.00	0.26
2.5-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	17.12	16.81	5.21	0.76	24.20	26.42	8.09	1.23	



REDONDO BEACH DEEP WATER

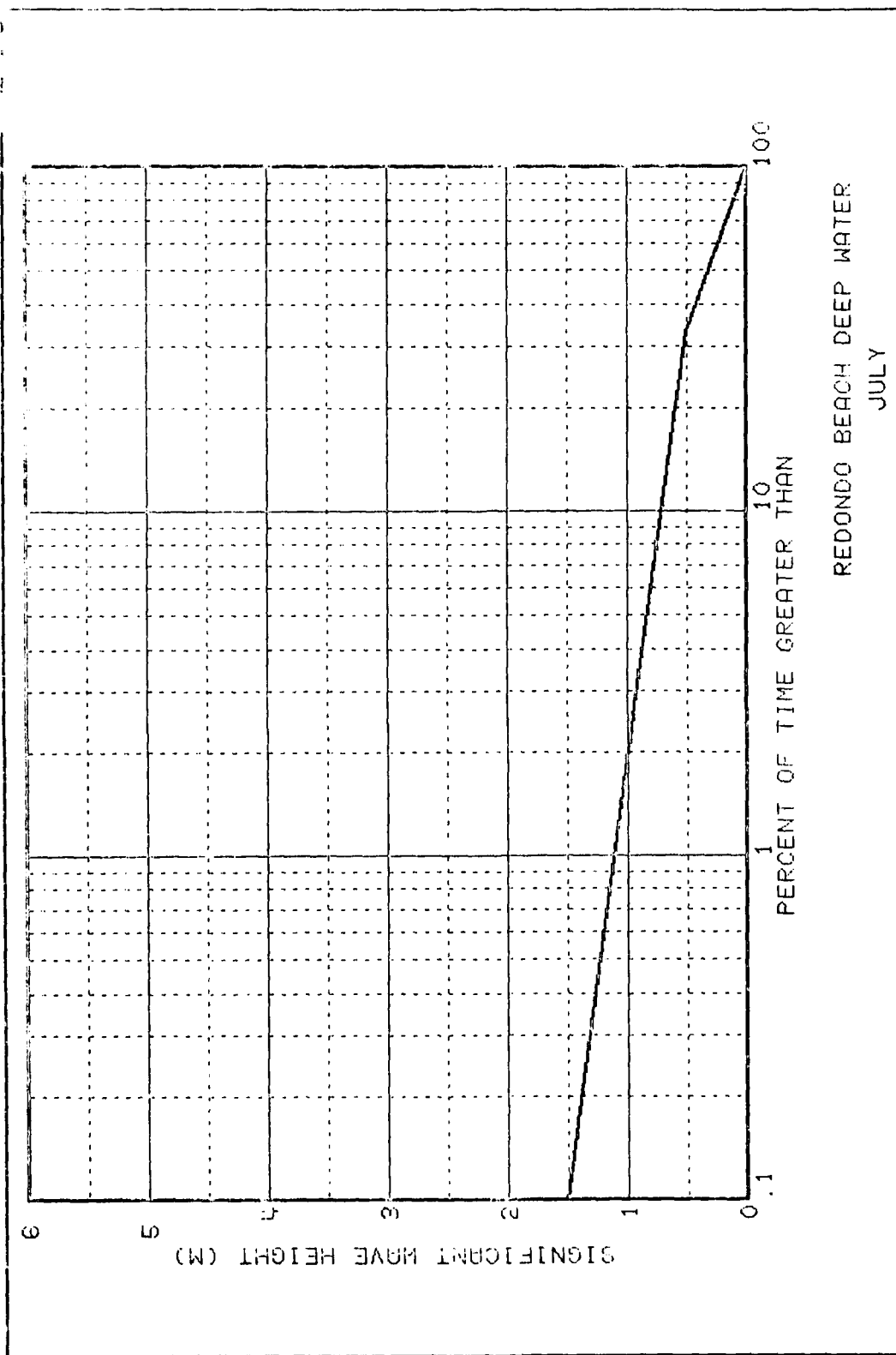
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5	1.77	18.89	3.55	0.00	14.88	21.82	5.98	2.17	69.06
0.5-1.0	15.09	3.47	1.61	0.25	2.17	3.10	0.88	0.00	26.57
1.0-1.5	2.75	1.13	0.00	0.00	0.00	0.00	0.00	0.00	3.88
1.5-2.0	0.00	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.32
2.0-2.5	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.08
2.5-3.0	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.03
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	19.61	23.89	5.24	0.25	17.05	24.92	6.86	2.17	



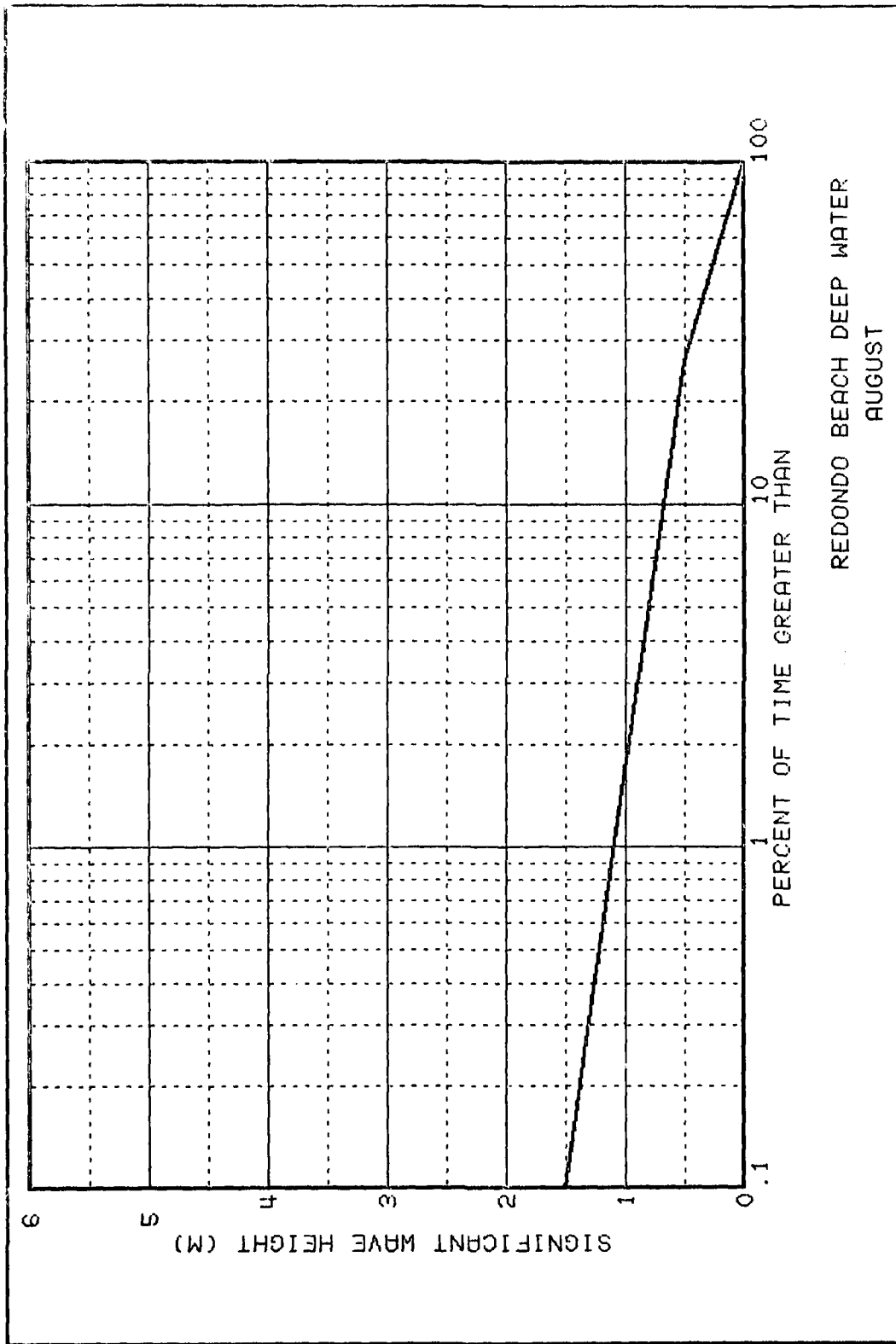
REDONDO BEACH DEEP WATER
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18
0.0-0.5	1.69	16.95	2.74	0.07	31.56	12.06	1.43	0.13
0.5-1.0	10.42	3.33	0.34	0.07	8.34	7.21	0.97	0.13
1.0-1.5	1.34	0.56	0.00	0.00	0.00	0.00	0.00	0.00
1.5-2.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.0-2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.5-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	13.44	20.90	3.53	0.14	40.00	19.28	2.40	0.26



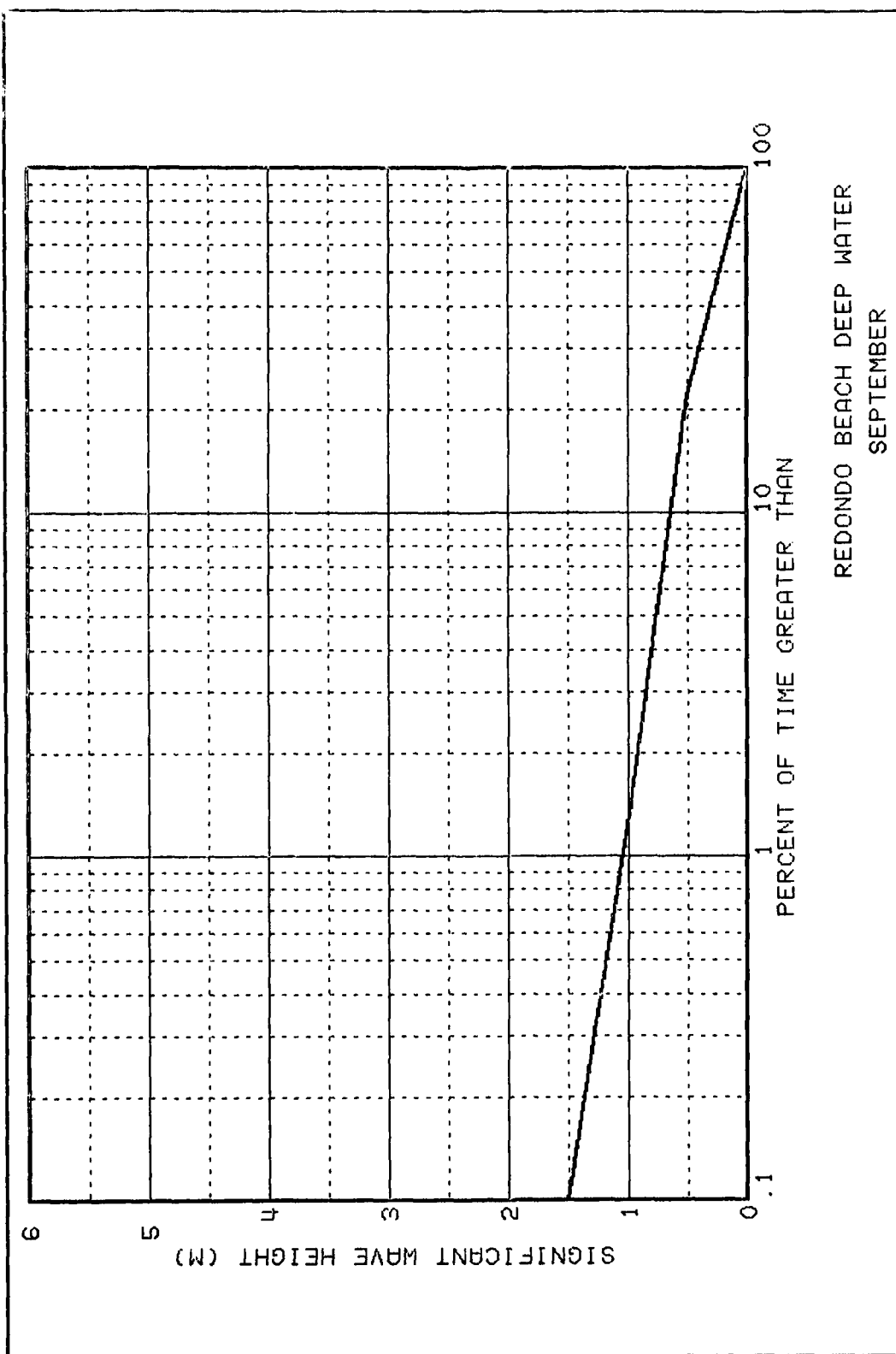
REDONDO BEACH DEEP WATER
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18
0.0-0.5	1.94	17.77	2.91	0.16	23.91	22.49	4.08	0.47
0.5-1.0	8.24	2.10	0.72	0.24	7.12	4.07	1.96	0.12
1.0-1.5	1.05	0.65	0.00	0.00	0.00	0.00	0.00	0.00
1.5-2.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.0-2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.5-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	11.22	20.52	3.63	0.41	31.03	26.56	6.04	0.59



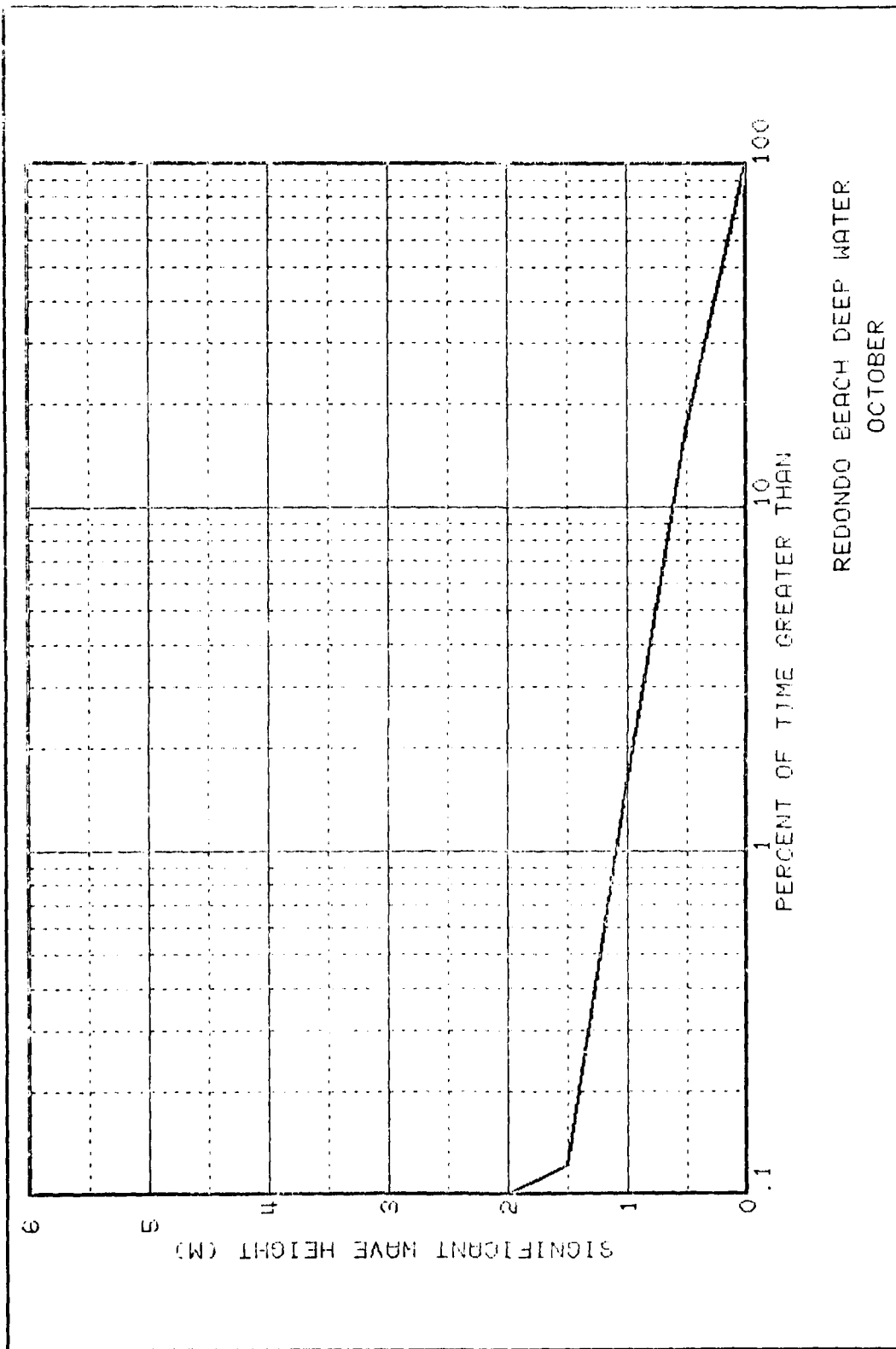
REDONDO BEACH DEEP WATER
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5	1.54	9.24	1.23	0.46	32.82	23.76	8.04	0.87	77.96
0.5-1.0	7.08	1.03	0.16	0.16	6.60	3.29	1.92	0.53	20.81
1.0-1.5	0.77	0.39	0.00	0.00	0.00	0.00	0.00	0.00	1.15
1.5-2.0	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.03
2.0-2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.5-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	9.33	10.78	1.39	0.62	39.42	27.05	9.96	1.40	



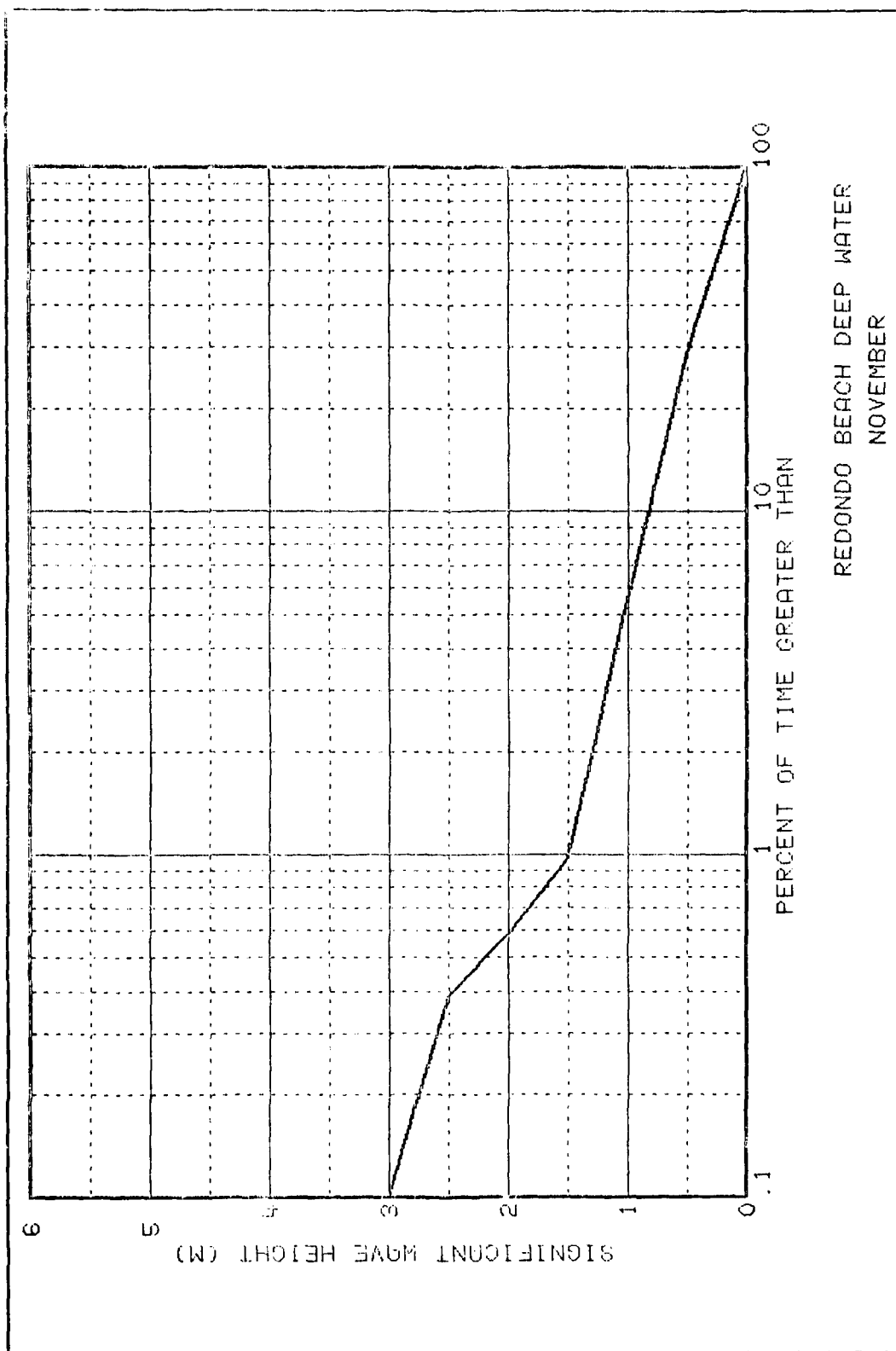
REDONDO BEACH DEEP WATER
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5	0.60	5.01	1.67	2.51	43.63	19.75	4.63	0.35	83.13
0.5-1.0	6.21	0.43	0.12	0.24	5.21	2.28	0.56	0.17	15.27
1.0-1.5	1.03	0.36	0.00	0.00	0.00	0.00	0.00	0.00	1.43
1.5-2.0	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.12
2.0-2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.5-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	7.83	5.96	1.73	2.75	53.83	22.03	5.18	0.52	



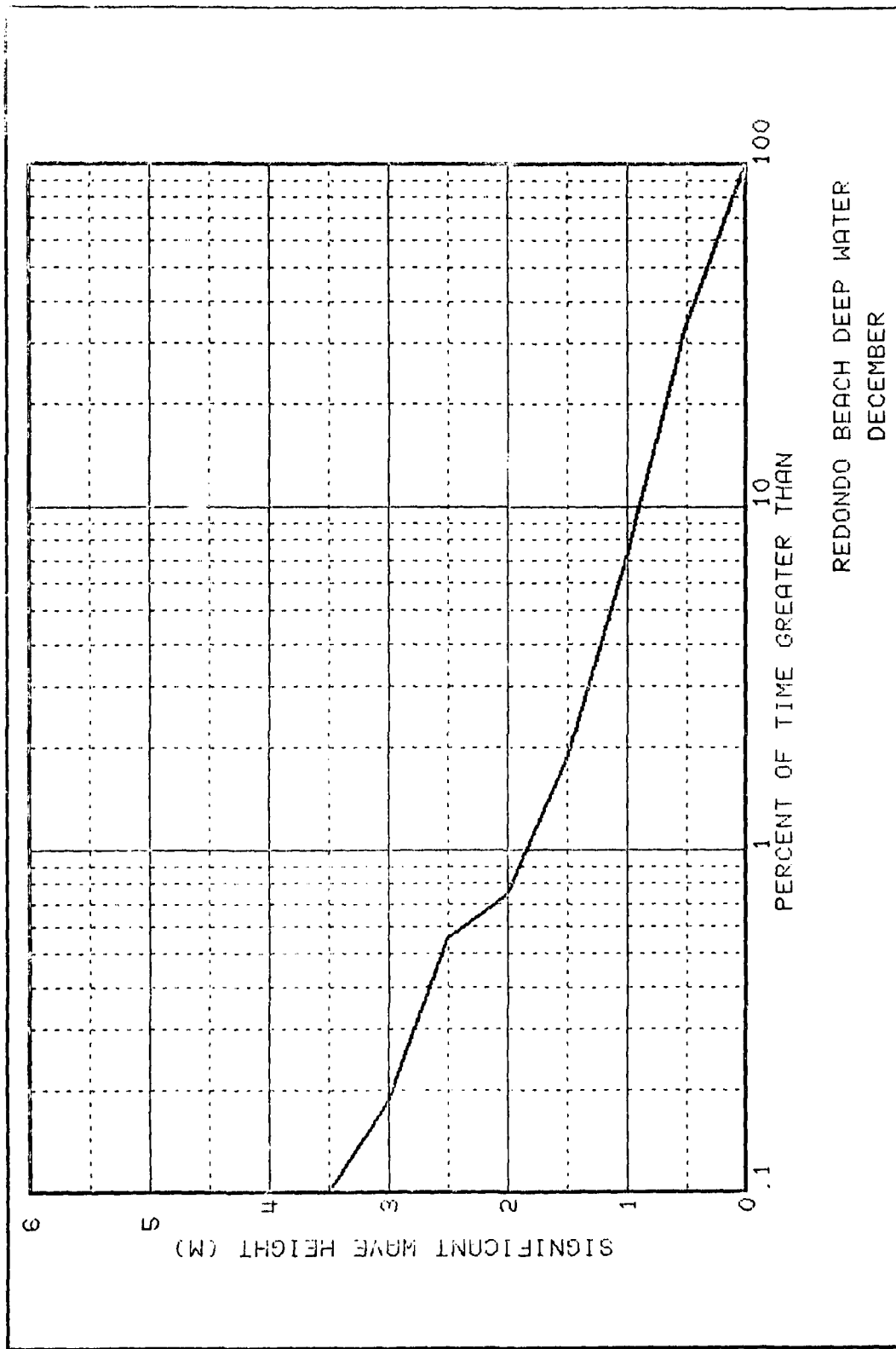
REDONDO BEACH DEEP WATER
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	1.34	10.27	1.13	4.93	32.50	17.67	3.23	0.00	71.08
0.5-1.0	11.01	2.28	0.76	1.71	3.61	3.80	0.19	0.00	23.27
1.0-1.5	1.52	2.29	0.53	0.19	0.00	0.00	0.00	0.00	4.59
1.5-2.0	0.00	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.39
2.0-2.5	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.19
2.5-3.0	0.00	0.19	0.19	0.00	0.00	0.00	0.00	0.00	0.39
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	13.87	15.61	2.67	6.84	36.11	21.47	3.43	0.00	



REDONDO BEACH DEEP WATER
CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5	1.99	2.92	1.99	5.09	39.33	15.97	4.90	0.00	66.18
0.5-1.0	8.71	3.27	1.99	2.73	4.54	4.17	1.27	0.00	26.58
1.0-1.5	2.74	1.99	0.55	0.00	0.00	0.00	0.00	0.00	5.29
1.5-2.0	0.00	0.32	0.18	0.00	0.00	0.00	0.00	0.00	1.11
2.0-2.5	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.13
2.5-3.0	0.00	0.18	0.18	0.00	0.00	0.00	0.00	0.00	0.37
3.0-3.5	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.18
TOTAL	13.45	9.29	5.23	7.82	37.87	20.13	6.16	0.00	



REDONDO BEACH DEEP WATER
CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 210

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.29	0.07	0.02	0.00	12.42	8.94	2.77	0.54	25.04
0.5-1.0	0.32	0.25	0.04	0.00	0.55	0.69	0.32	0.06	2.23
1.0-1.5	0.02	0.29	0.02	0.00	0.00	0.00	0.00	0.00	0.32
1.5-2.0	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.04
2.0-2.5	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.04
2.5-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.62	0.64	0.12	0.00	12.97	9.64	3.08	0.60	

REDONDO BEACH DEEP WATER
 CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 240

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.01	0.03	0.02	0.01	5.37	5.01	0.76	0.12	11.93
0.5-1.0	0.37	0.30	0.06	0.04	3.30	2.01	0.69	0.03	7.30
1.0-1.5	0.53	0.37	0.03	0.02	0.00	0.00	0.03	0.00	1.02
1.5-2.0	0.02	0.19	0.00	0.01	0.00	0.00	0.00	0.00	0.21
2.0-2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
2.5-3.0	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.05
3.0-3.5	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01
TOTAL	1.43	1.03	0.21	0.07	9.27	7.02	1.52	0.15	

REDONDO BEACH DEEP WATER
CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 270

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.41	2.14	0.62	0.86	6.98	0.96	0.38	0.00	12.36
0.5-1.0	3.52	2.20	0.42	0.49	1.05	1.33	0.26	0.00	9.26
1.0-1.5	0.42	0.96	0.05	0.00	0.01	0.00	0.00	0.00	1.43
1.5-2.0	0.00	0.19	0.00	0.00	0.01	0.00	0.00	0.00	0.20
2.0-2.5	0.00	0.05	0.08	0.00	0.00	0.00	0.00	0.00	0.13
2.5-3.0	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	4.35	5.54	1.13	1.35	8.04	2.29	0.64	0.00	

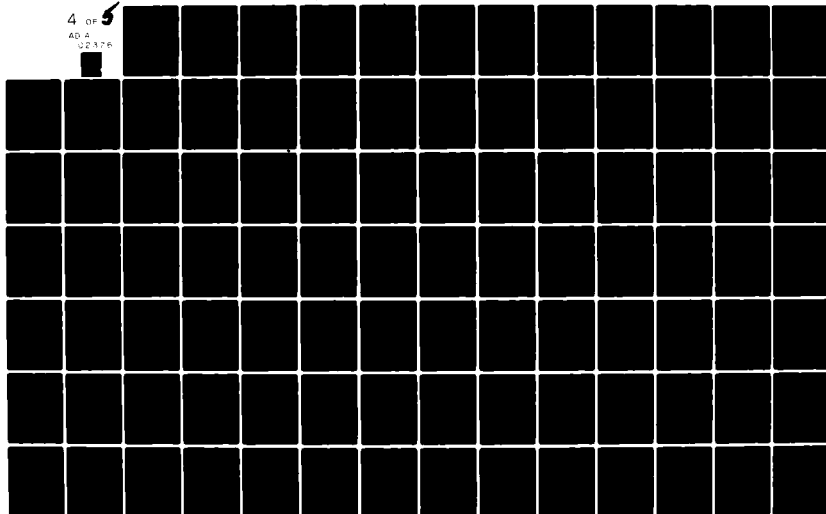
AD-A102 376

ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG MS F/6 8/3
BEACH NOURISHMENT TECHNIQUES. REPORT 4. WAVE CLIMATES FOR SELEC--ETC(U)
APR 81 D L DURHAM; L Z HALES; T W RICHARDSON
WES-TR-H-76-13-4-APP

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REDONDO BEACH DEEP WATER

CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD

WAVE DIRECTION = 300

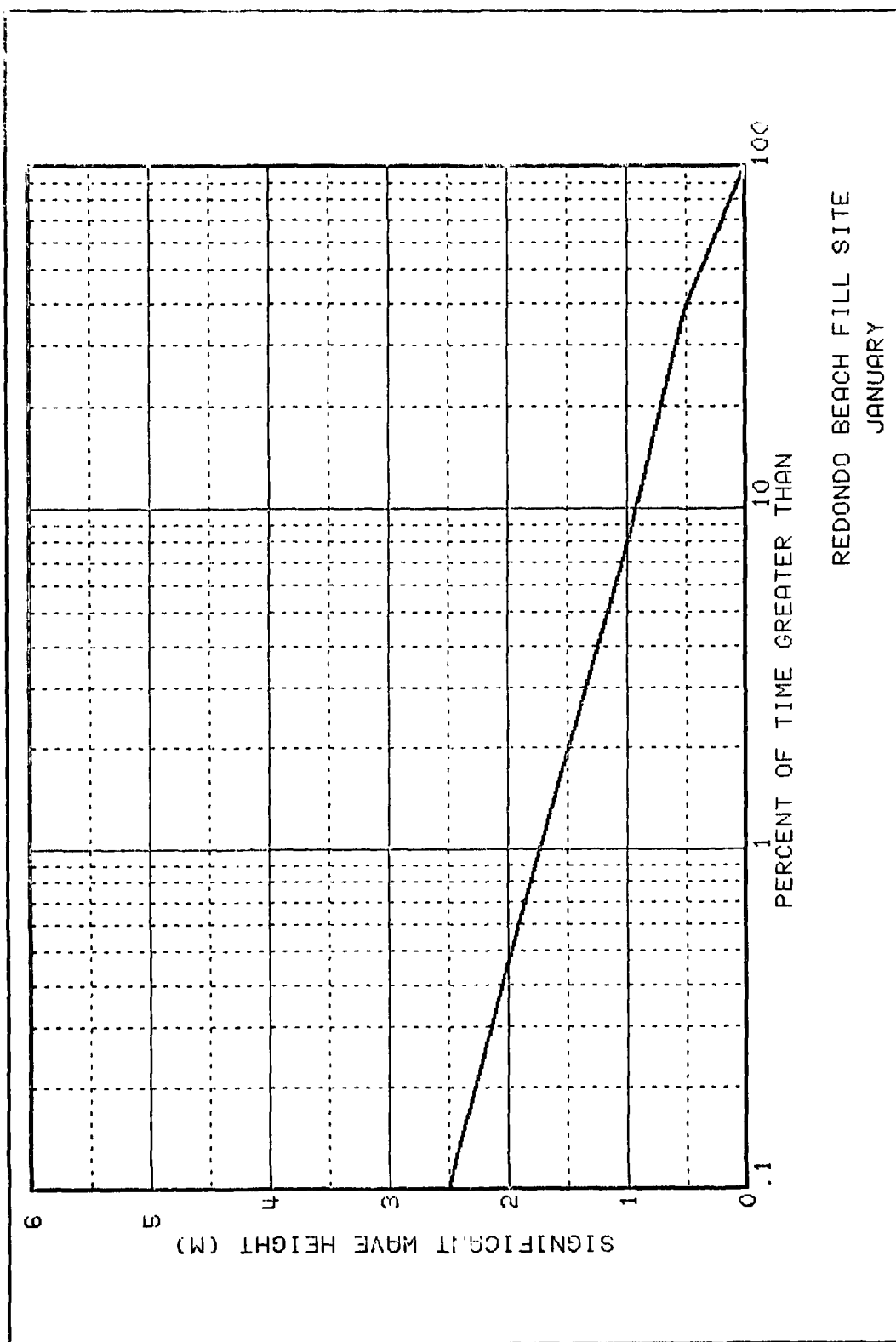
HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18
0.0-0.5	0.85	9.19	1.90	0.75	2.66	3.55	0.89	0.00
0.5-1.0	2.59	0.12	0.56	0.14	0.02	0.00	0.01	0.00
1.0-1.5	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.5-2.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.0-2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.5-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	3.89	9.31	2.47	0.89	2.67	3.55	0.90	0.00

REDONDO BEACH DEEP WATER
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 330

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5-1.0	3.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.77
1.0-1.5	0.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79
1.5-2.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.0-2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.5-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	4.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

REDONDO BEACH FILL SITE
CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JANUARY

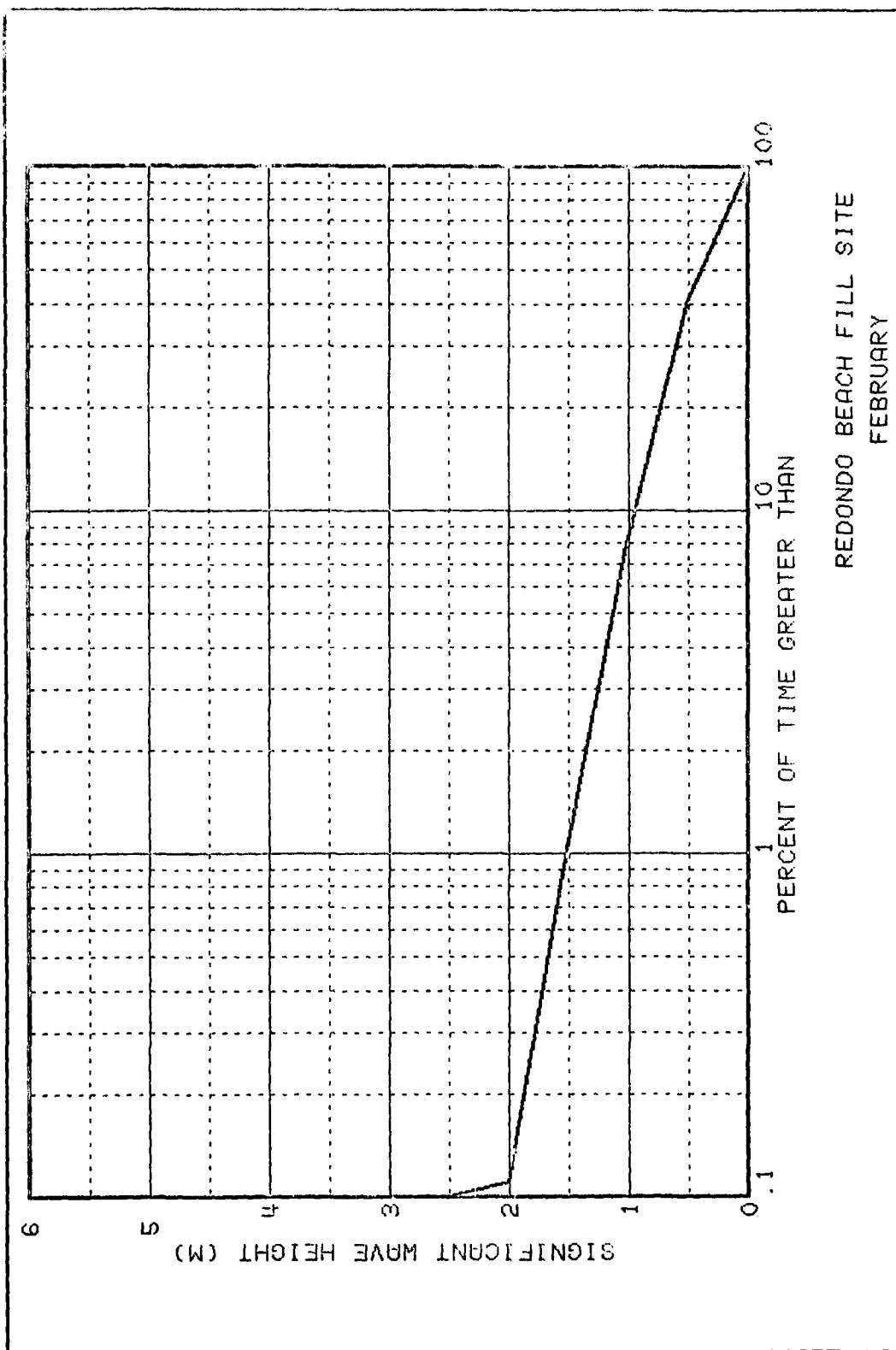
HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18
0.0-0.5	5.00	3.59	3.49	4.56	25.75	12.83	5.87	0.00
0.5-1.0	8.47	5.39	2.43	2.07	4.73	5.39	2.82	0.00
1.0-1.5	2.89	2.27	0.48	0.00	0.00	0.00	0.00	0.00
1.5-2.0	0.00	1.03	0.22	0.12	0.00	0.00	0.00	0.00
2.0-2.5	0.00	0.17	0.13	0.00	0.00	0.00	0.00	0.00
2.5-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	16.37	12.44	6.00	6.01	20.40	10.22	0.00	0.00



REDONDO BEACH FILL SITE
JANUARY

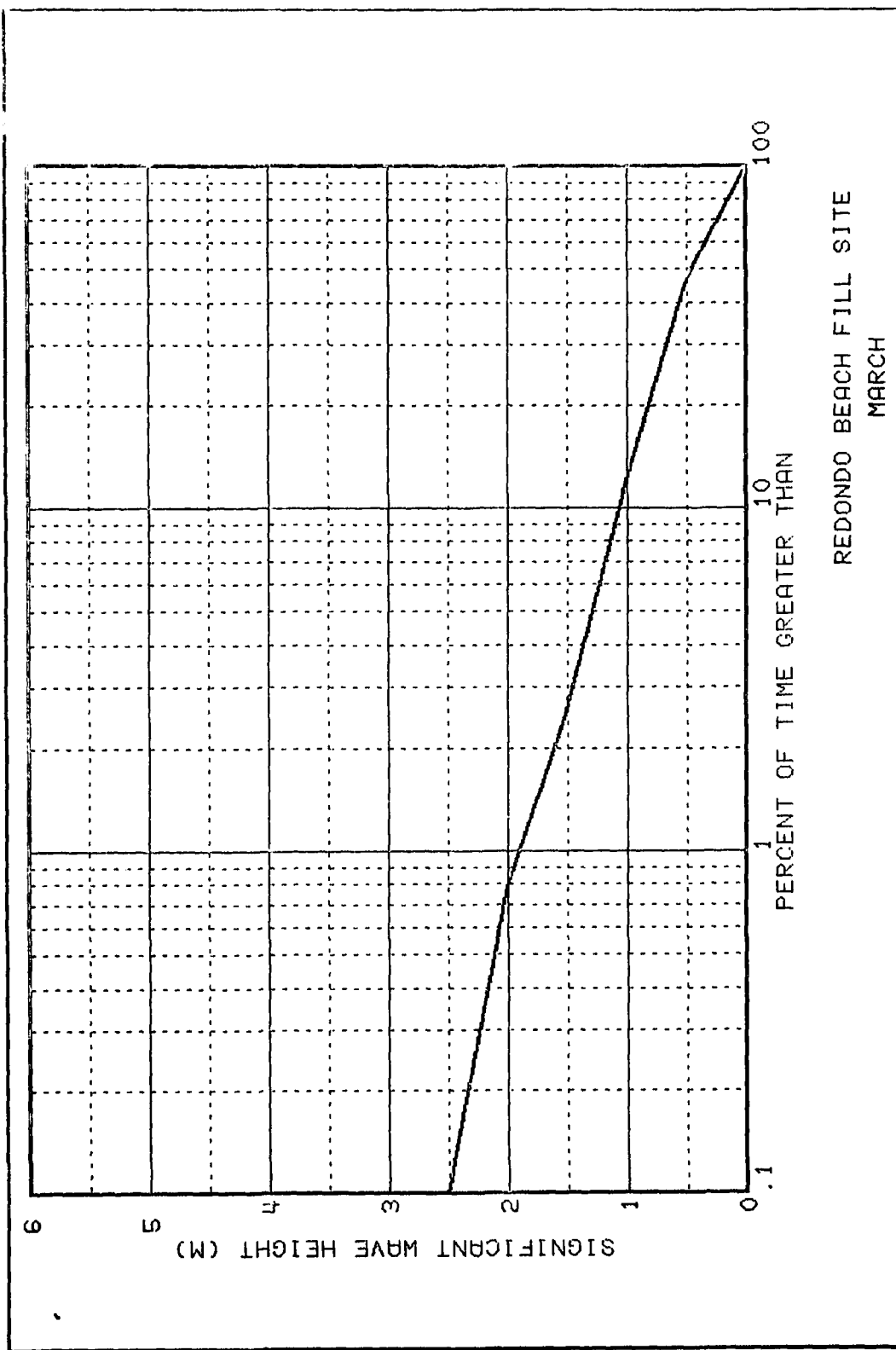
REDONDO BEACH FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18
0.0-0.5	3.09	5.41	1.88	5.20	26.94	11.43	5.37	0.00
0.5-1.0	10.11	5.96	2.97	2.03	4.25	5.92	1.26	0.00
1.0-1.5	2.89	3.57	0.82	0.00	0.01	0.00	0.00	0.00
1.5-2.0	0.35	0.43	0.00	0.00	0.13	0.00	0.00	0.00
2.0-2.5	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.5-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	16.55	15.33	5.47	7.23	31.33	17.35	6.63	0.00



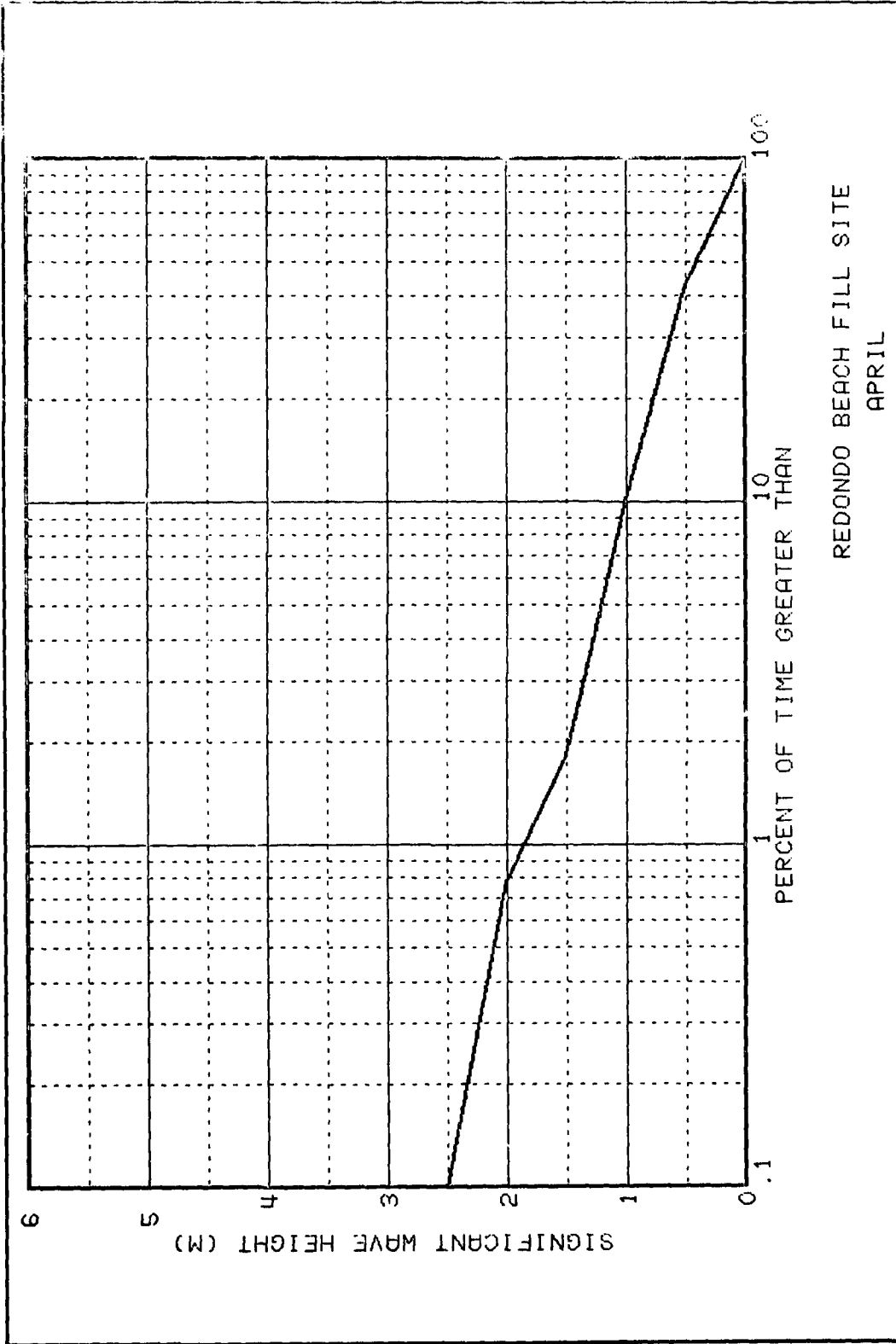
REDONDO BEACH FILL SITE
CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MARCH

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	4.81	10.00	2.94	3.94	21.22	9.16	1.28	0.00	53.35
0.5-1.0	15.38	7.43	1.22	1.22	2.63	3.91	2.78	0.00	34.50
1.0-1.5	3.83	4.52	0.00	0.14	0.00	0.00	0.90	0.00	9.47
1.5-2.0	0.00	1.53	0.20	0.00	0.00	0.00	0.00	0.00	1.81
2.0-2.5	0.00	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.70
2.5-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	24.02	23.84	4.86	5.31	23.85	13.06	4.96	0.00	



REDONDO BEACH FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR APRIL

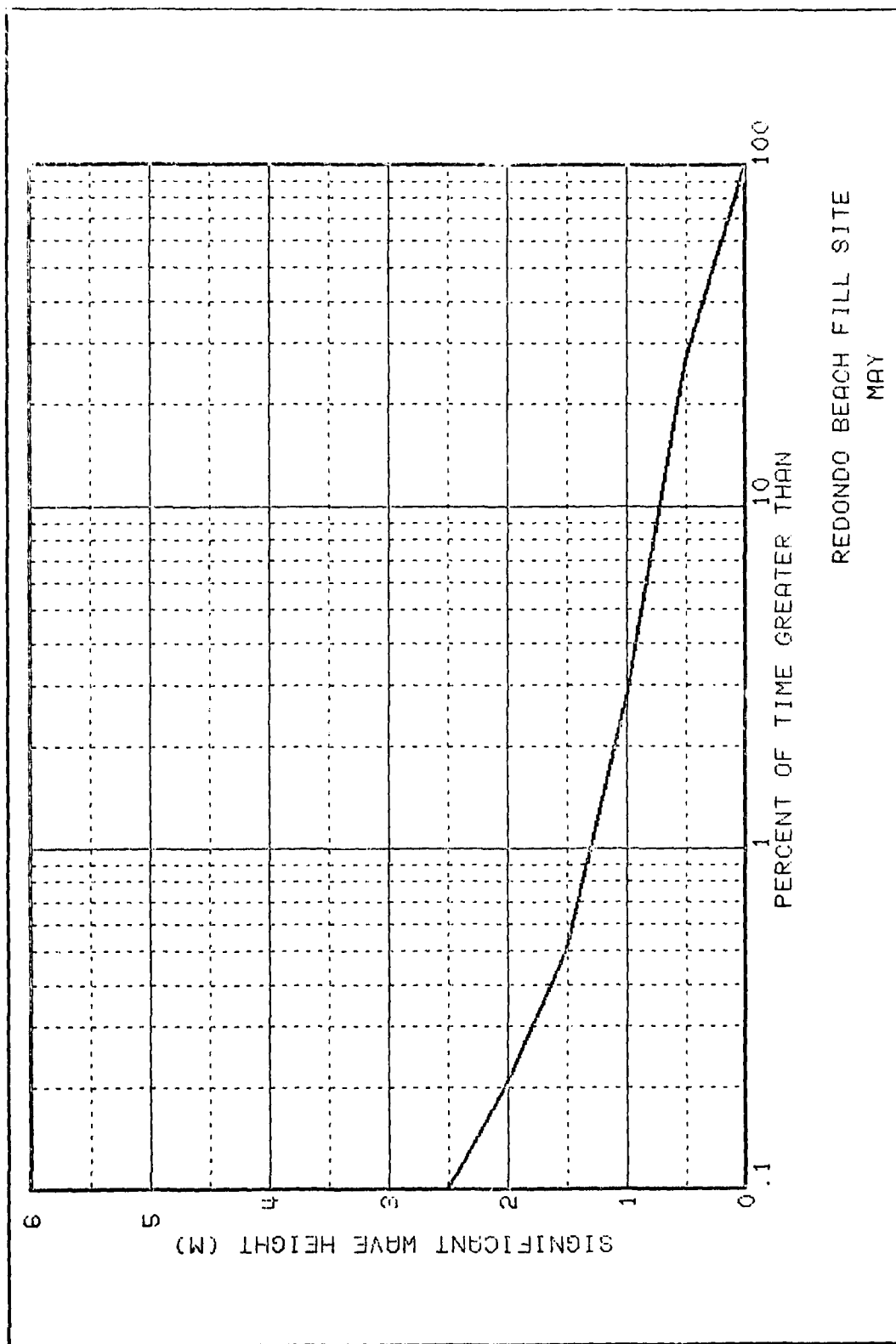
HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5	5.00	17.37	3.76	3.32	19.58	7.32	0.87	0.00	57.22
0.5-1.0	19.74	4.69	2.62	0.82	1.27	3.28	0.13	0.00	32.56
1.0-1.5	4.92	2.76	0.26	0.00	0.18	0.00	0.27	0.00	8.38
1.5-2.0	0.00	0.73	0.32	0.00	0.00	0.00	0.00	0.00	1.05
2.0-2.5	0.00	0.37	0.41	0.00	0.00	0.00	0.00	0.00	0.79
2.5-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	29.66	25.92	7.37	4.14	21.93	10.60	1.27	0.00	



REDONDO BEACH FILL SITE

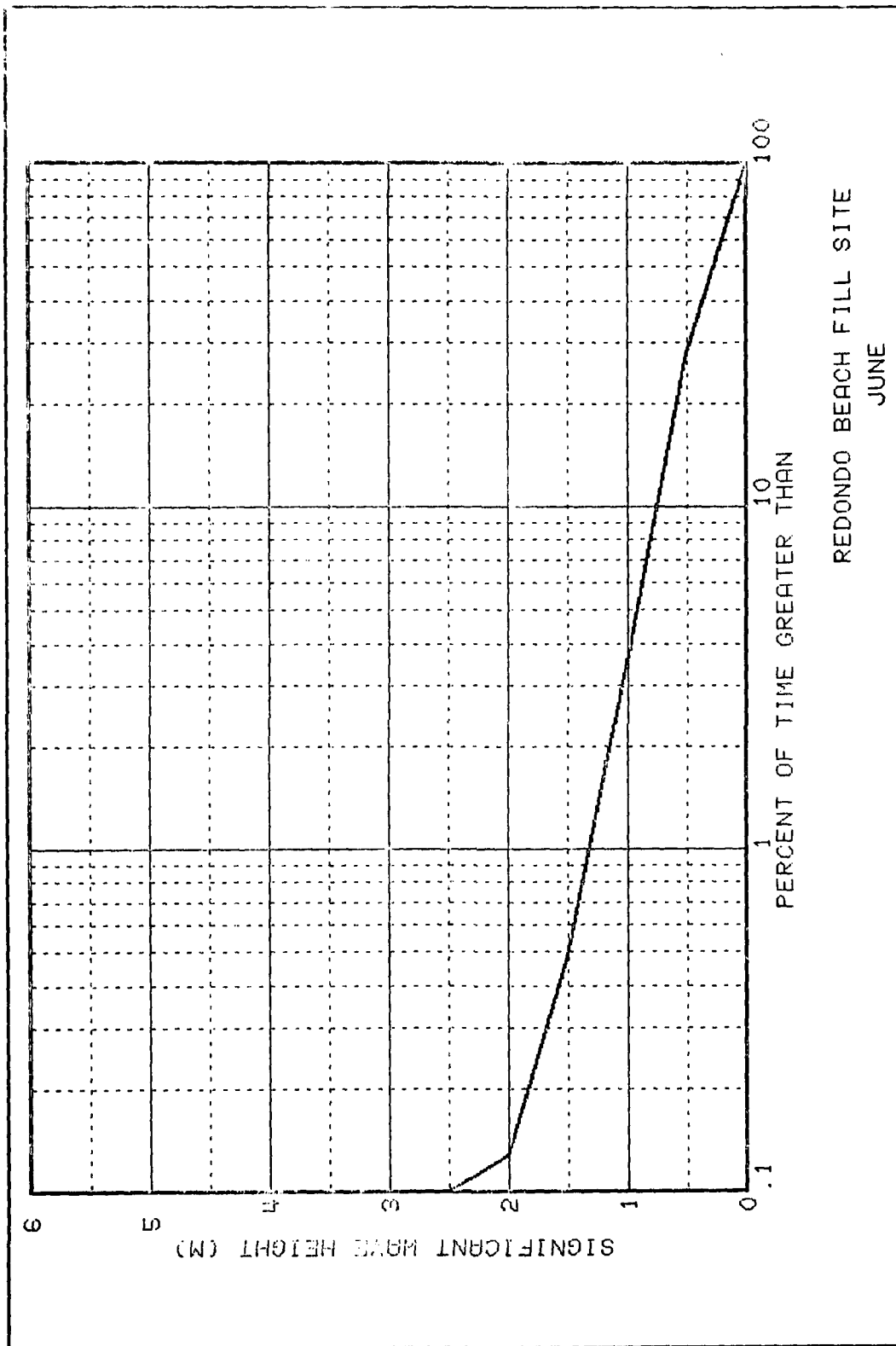
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18
0.0-0.5	2.63	12.61	3.89	0.52	21.13	24.23	7.12	1.03
0.5-1.0	13.19	3.08	1.14	0.18	3.07	2.25	0.97	0.24
1.0-1.5	1.36	0.75	0.05	0.06	0.00	0.00	0.01	0.00
1.5-2.0	0.00	0.25	0.05	0.00	0.00	0.00	0.00	0.00
2.0-2.5	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00
2.5-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	17.18	16.81	5.21	0.76	24.20	26.48	8.00	1.23



REDONDO BEACH FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

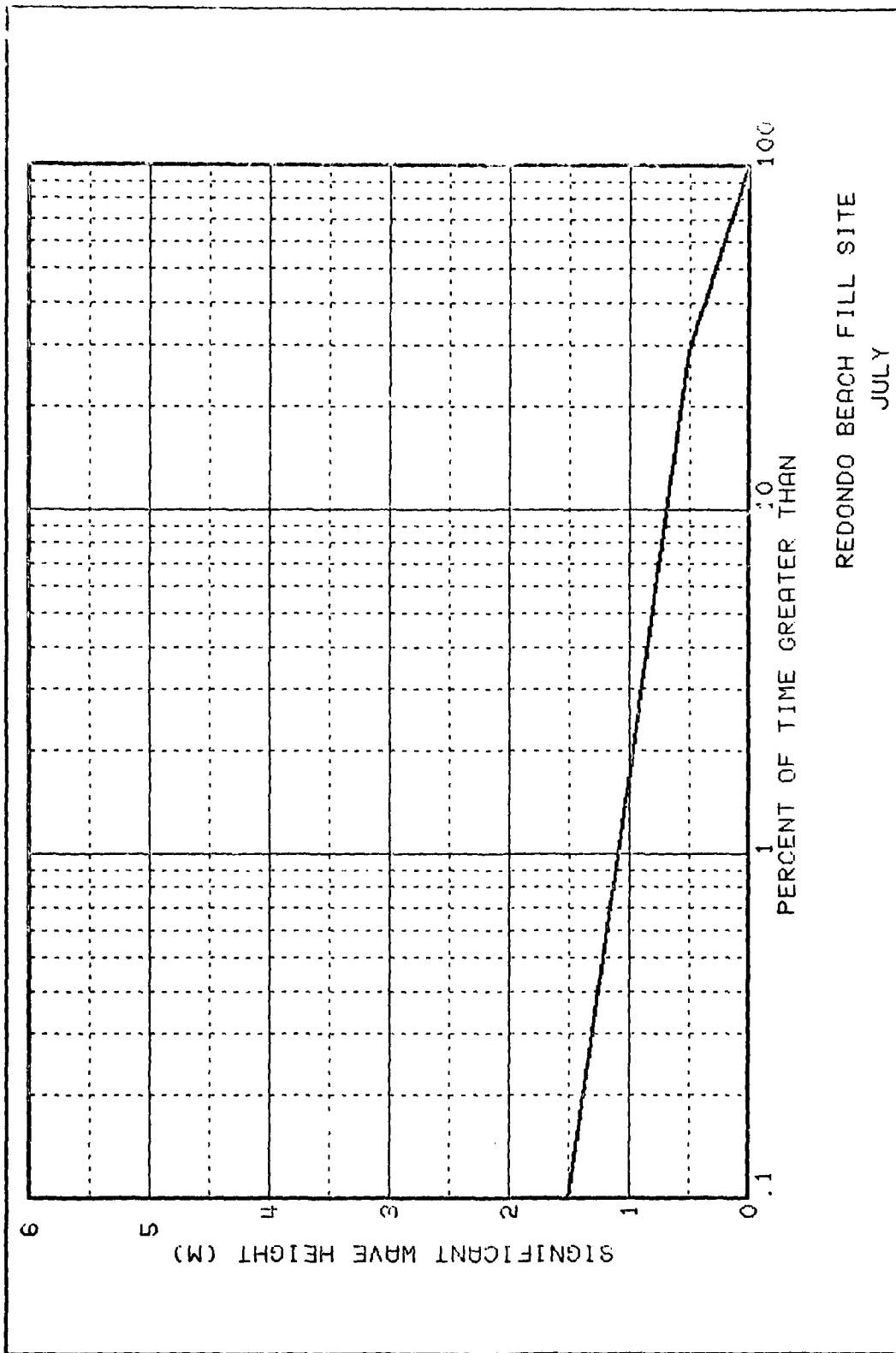
HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18
0.0-0.5	3.68	18.89	3.51	0.03	15.18	23.00	5.97	1.67
0.5-1.0	14.02	3.55	1.59	0.22	1.88	1.92	0.89	0.50
1.0-1.5	1.90	1.05	0.07	0.00	0.00	0.00	0.01	0.00
1.5-2.0	0.00	0.33	0.03	0.00	0.00	0.00	0.00	0.00
2.0-2.5	0.00	0.08	0.05	0.00	0.00	0.00	0.00	0.00
2.5-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	19.61	23.89	5.24	0.25	17.05	24.92	6.06	2.17



REDONDO BEACH FILL SITE

CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

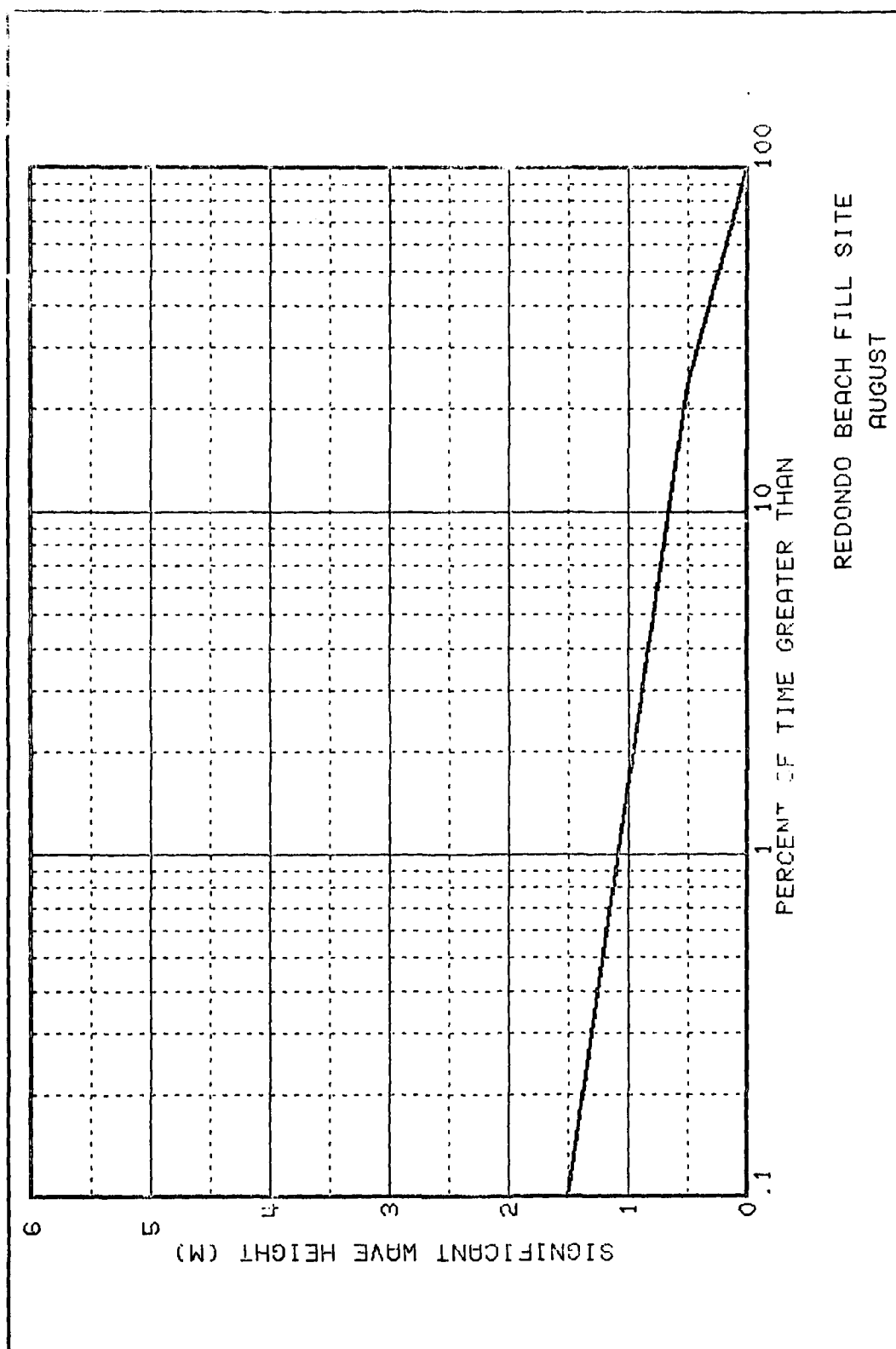
HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	2.76	16.95	2.70	0.02	32.66	14.44	1.48	0.14	71.22
0.5-1.0	9.68	3.38	0.86	0.06	7.33	4.83	0.91	0.12	27.17
1.0-1.5	1.00	0.56	0.03	0.00	0.00	0.00	0.02	0.00	1.62
1.5-2.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.0-2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.5-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	13.44	20.90	3.50	0.14	40.00	19.28	2.40	0.26	



REDONDO BEACH FILL SITE

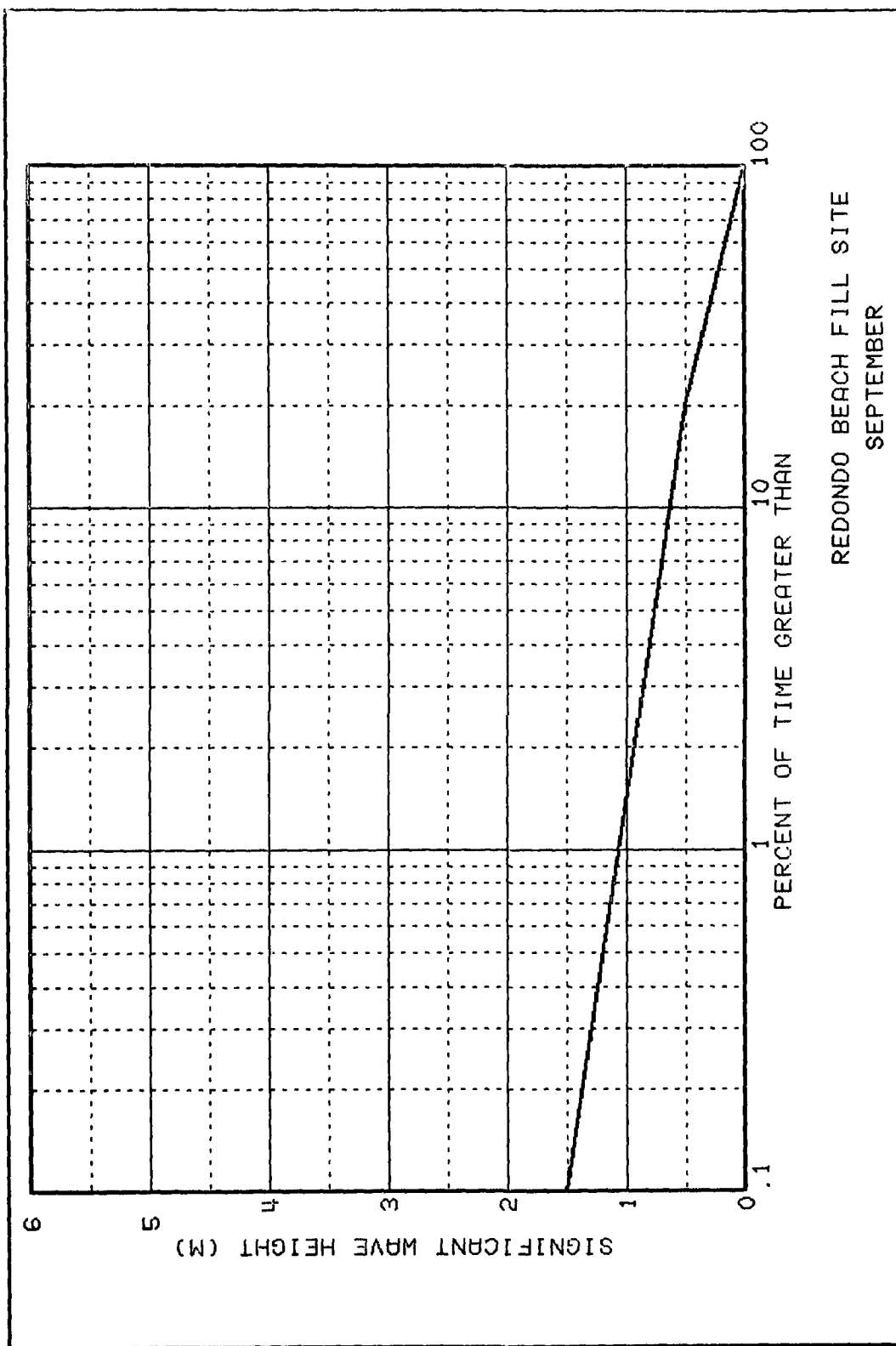
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18
0.0-0.5	2.86	17.77	2.87	0.20	24.77	23.55	4.24	0.40
0.5-1.0	7.50	2.10	0.74	0.20	6.27	3.02	1.78	0.19
1.0-1.5	0.86	0.65	0.03	0.00	0.00	0.00	0.02	0.00
1.5-2.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.0-2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.5-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	11.22	20.52	3.63	0.41	31.03	26.56	6.04	0.59



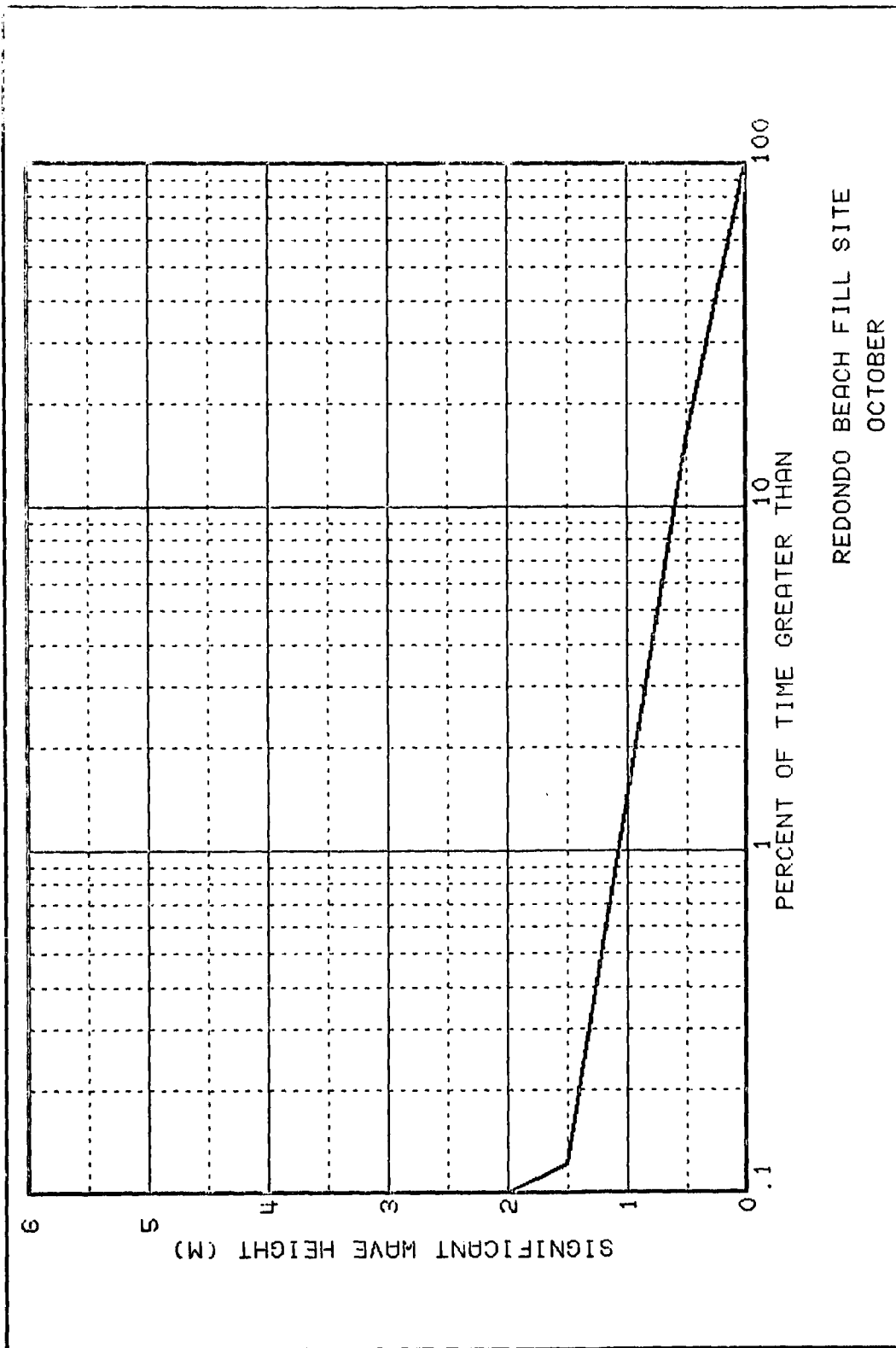
REDONDO BEACH FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18
0.0-0.5	2.26	9.24	1.20	0.47	33.63	24.63	8.03	80.15
0.5-1.0	6.51	1.08	0.13	0.15	5.79	2.42	1.89	18.48
1.0-1.5	0.62	0.33	0.01	0.00	0.00	0.00	0.04	1.30
1.5-2.0	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.08
2.0-2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.5-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	9.38	10.73	1.33	0.62	39.42	27.05	9.95	1.40



REDONDO BEACH FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

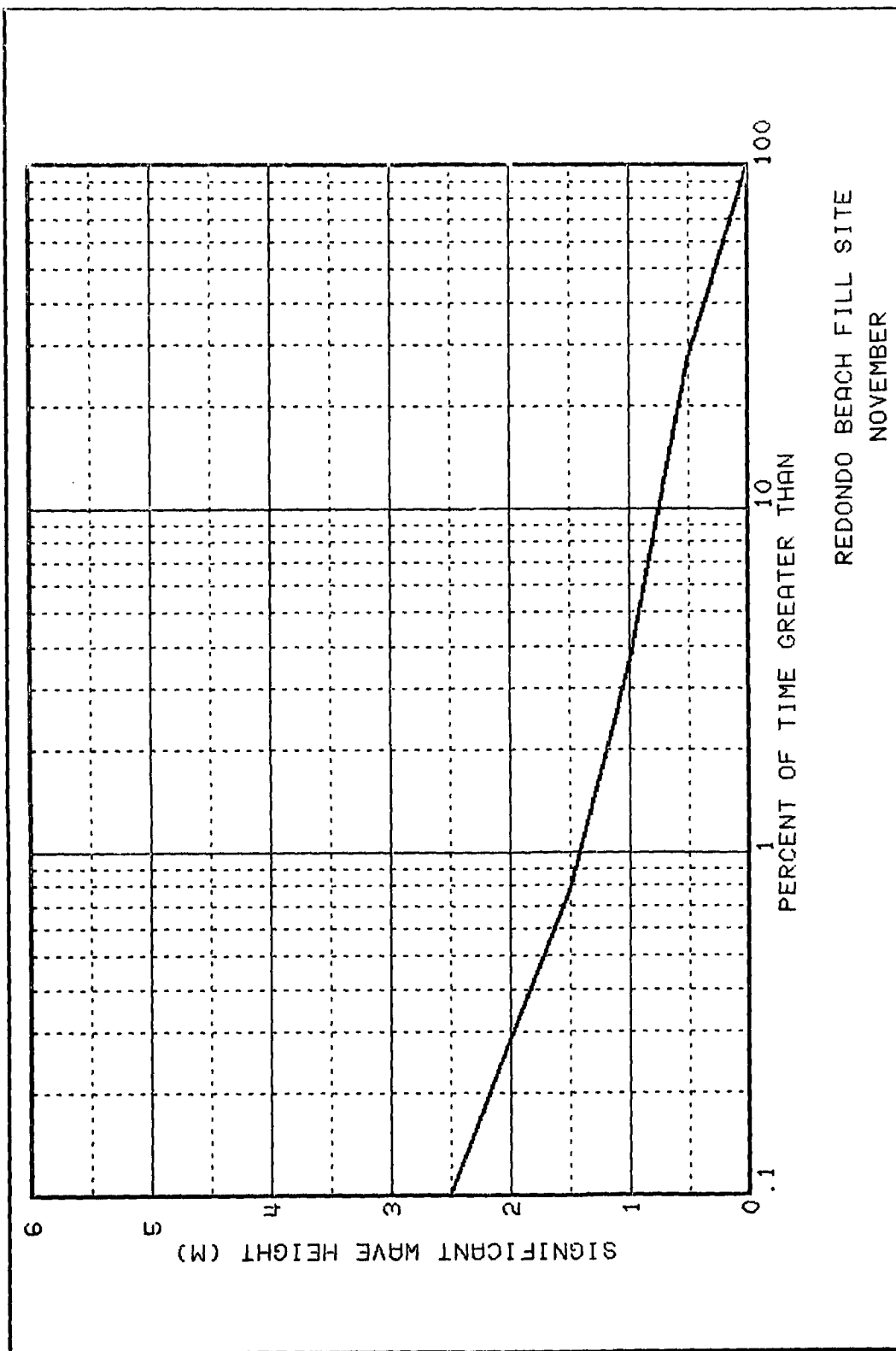
HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5	1.51	5.13	1.64	2.52	49.15	19.48	4.55	0.31	84.29
0.5-1.0	5.56	0.36	0.14	0.23	4.73	2.55	0.61	0.13	14.31
1.0-1.5	0.31	0.36	0.01	0.00	0.00	0.00	0.03	0.08	1.23
1.5-2.0	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.12
2.0-2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.5-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	7.33	5.95	1.79	2.75	53.88	22.03	5.10	0.52	



REDONDO BEACH FILL SITE
OCTOBER

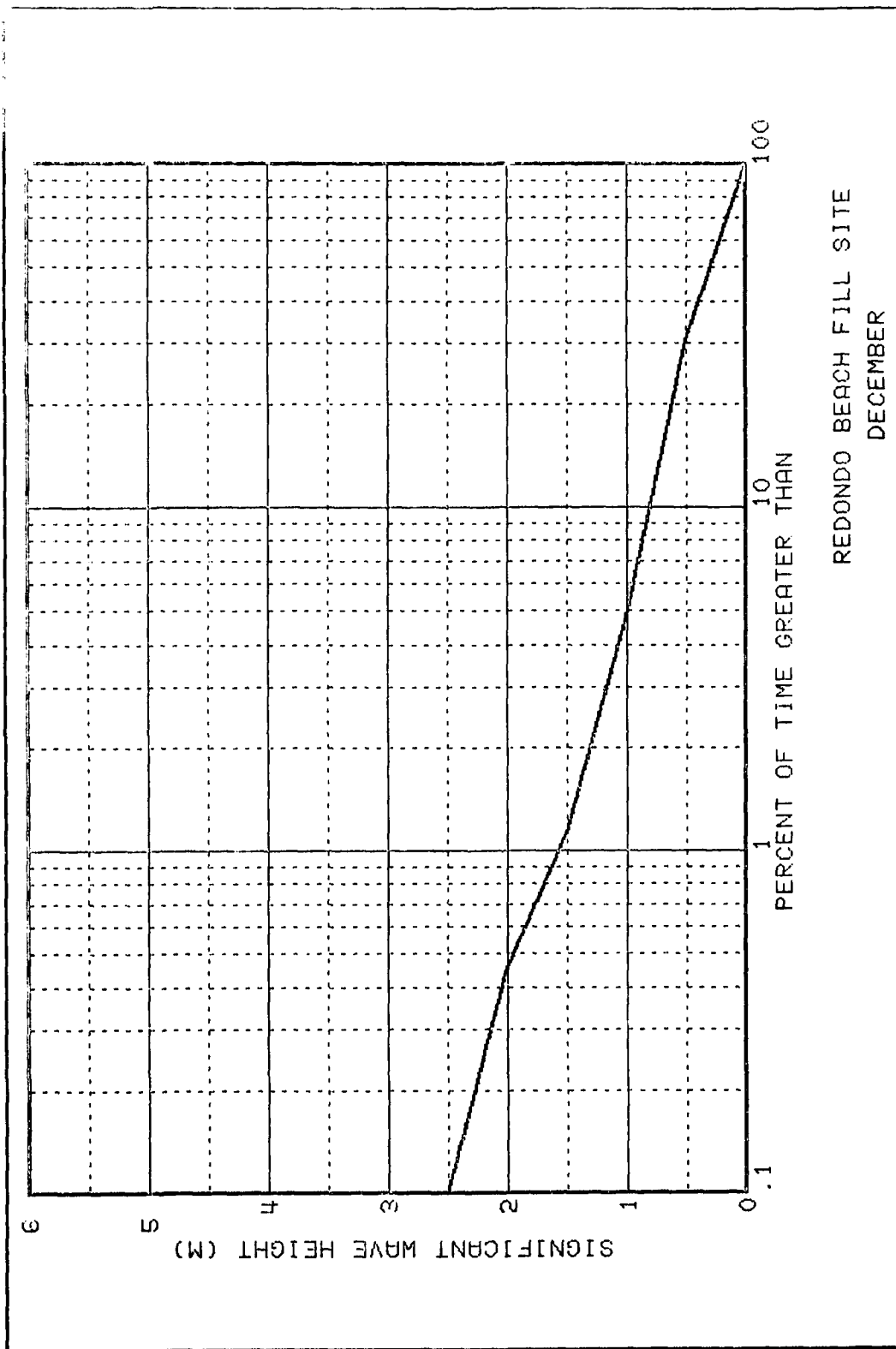
REDONDO BEACH FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	3.48	11.37	1.19	5.03	32.48	15.37	3.05	0.00	72.46
0.5-1.0	9.23	2.53	1.03	1.66	3.63	5.60	0.38	0.00	24.05
1.0-1.5	1.17	1.13	0.26	0.15	0.00	0.00	0.00	0.00	2.71
1.5-2.0	0.00	0.40	0.03	0.00	0.00	0.00	0.00	0.00	0.43
2.0-2.5	0.00	0.13	0.10	0.00	0.00	0.00	0.00	0.00	0.23
2.5-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	13.87	15.61	2.67	6.84	36.11	21.47	3.43	0.00	



REDONDO BEACH FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18
0.0-0.5	4.48	4.21	2.40	5.26	33.32	14.70	4.85	69.23
0.5-1.0	7.02	3.09	2.01	2.56	4.54	5.43	1.31	25.93
1.0-1.5	1.94	1.36	0.36	0.00	0.00	0.00	0.00	3.66
1.5-2.0	0.00	0.46	0.22	0.00	0.00	0.00	0.00	0.68
2.0-2.5	0.00	0.17	0.25	0.00	0.00	0.00	0.00	0.42
2.5-3.0	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.03
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	13.45	9.29	5.28	7.82	37.87	20.13	6.16	0.00



REDONDO BEACH FILL SITE

CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD

WAVE DIRECTION = 210

HEIGHT (M)	PERIOD (SEC)							TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18
0.0-0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5-1.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.0-1.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.5-2.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.0-2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.5-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

REDONDO BEACH FILL SITE
 CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 240

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5	0.73	0.47	0.03	0.00	0.00	0.00	0.00	0.00	1.23
0.5-1.0	0.89	0.73	0.14	0.00	0.00	0.00	0.00	0.00	1.76
1.0-1.5	0.42	0.34	0.05	0.00	0.00	0.00	0.00	0.00	0.81
1.5-2.0	0.01	0.12	0.03	0.00	0.00	0.00	0.00	0.00	0.16
2.0-2.5	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.04
2.5-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	2.05	1.67	0.22	0.00	0.00	0.00	0.00	0.00	

REDONDO BEACH FILL SITE
 CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 270

HEIGHT (M)	PERIOD (SEC)								TOTAL
	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	
0.0-0.5	0.56	2.14	0.67	0.90	25.86	16.05	3.89	0.54	50.70
0.5-1.0	3.40	2.20	0.33	0.50	4.40	2.90	1.18	0.19	15.16
1.0-1.5	0.33	0.96	0.04	0.01	0.01	0.00	0.07	0.03	1.50
1.5-2.0	0.00	0.13	0.03	0.01	0.01	0.00	0.00	0.00	0.24
2.0-2.5	0.00	0.05	0.06	0.00	0.00	0.00	0.00	0.00	0.10
2.5-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	4.35	5.54	1.10	1.42	20.28	10.05	5.24	0.76	

REDONDO BEACH FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 300

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5	0.93	3.13	1.05	0.77	2.63	2.39	0.82	0.00	19.23
0.5-1.0	2.50	0.12	0.59	0.12	0.04	0.57	0.08	0.00	4.02
1.0-1.5	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43
1.5-2.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.0-2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.5-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	3.83	3.21	2.47	0.89	2.67	3.55	0.90	0.00	

REDONDO BEACH FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 330

HEIGHT (M)	<4-6	6-8	8-10	10-12	12-14	14-16	16-18	>18	TOTAL
0.0-0.5	0.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83
0.5-1.0	3.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.29
1.0-1.5	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45
1.5-2.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.0-2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.5-3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3.0-3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	4.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

APPENDIX J: AVERAGE WAVE CLIMATE AT INDIANA DUNES, IND.

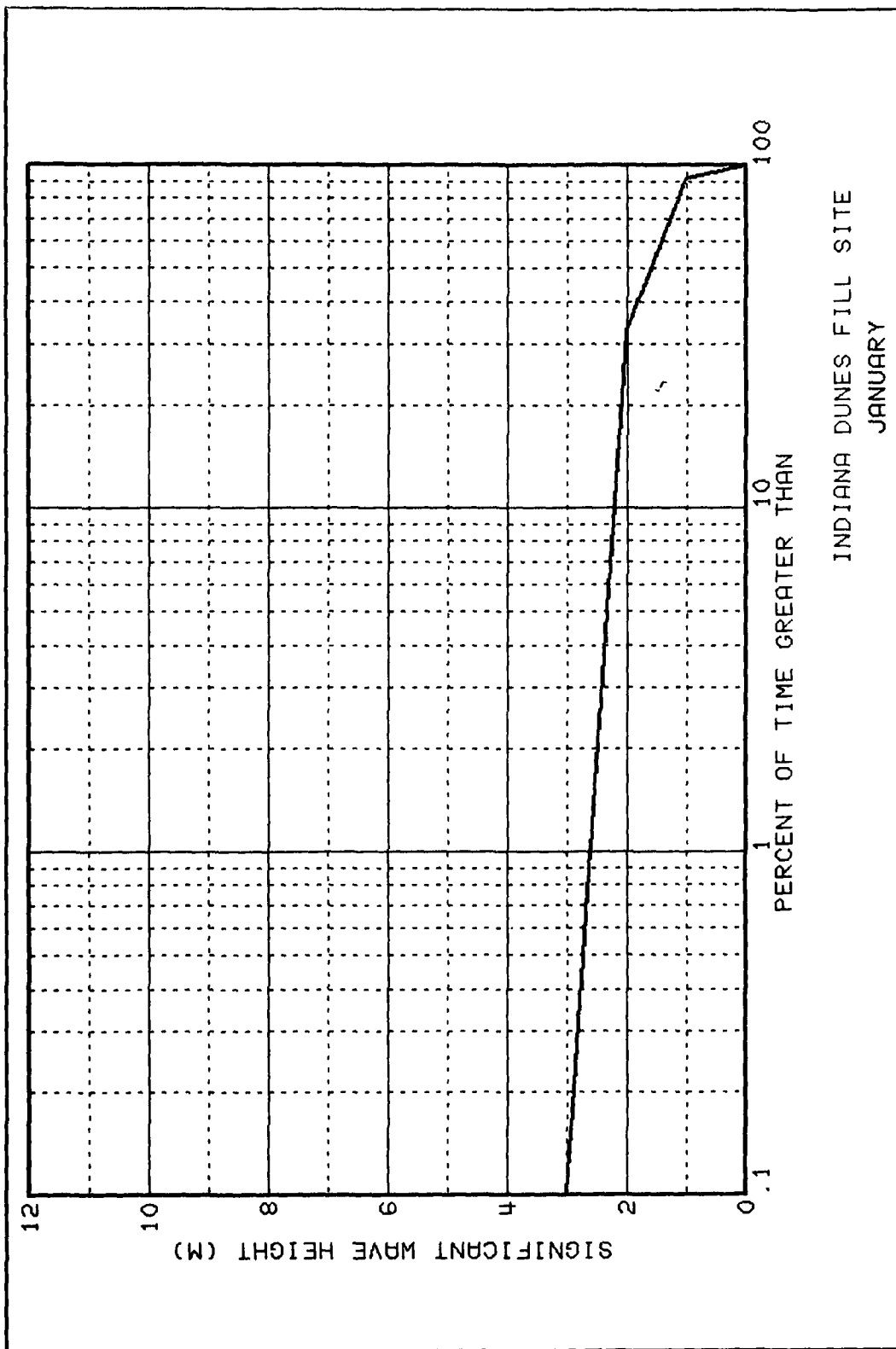
1. Appendix J contains the following information for the Indiana Dunes, Ind., fill site:

- a. Tabulations of monthly percent occurrence of wave-height/period combinations.
- b. Tabulations of annual percent occurrence by azimuth direction of wave-height/period combinations.
- c. Plots of monthly significant wave-height occurrence in terms of the total percent time per month that these heights are exceeded.

INDIANA DUNES FILL SITE

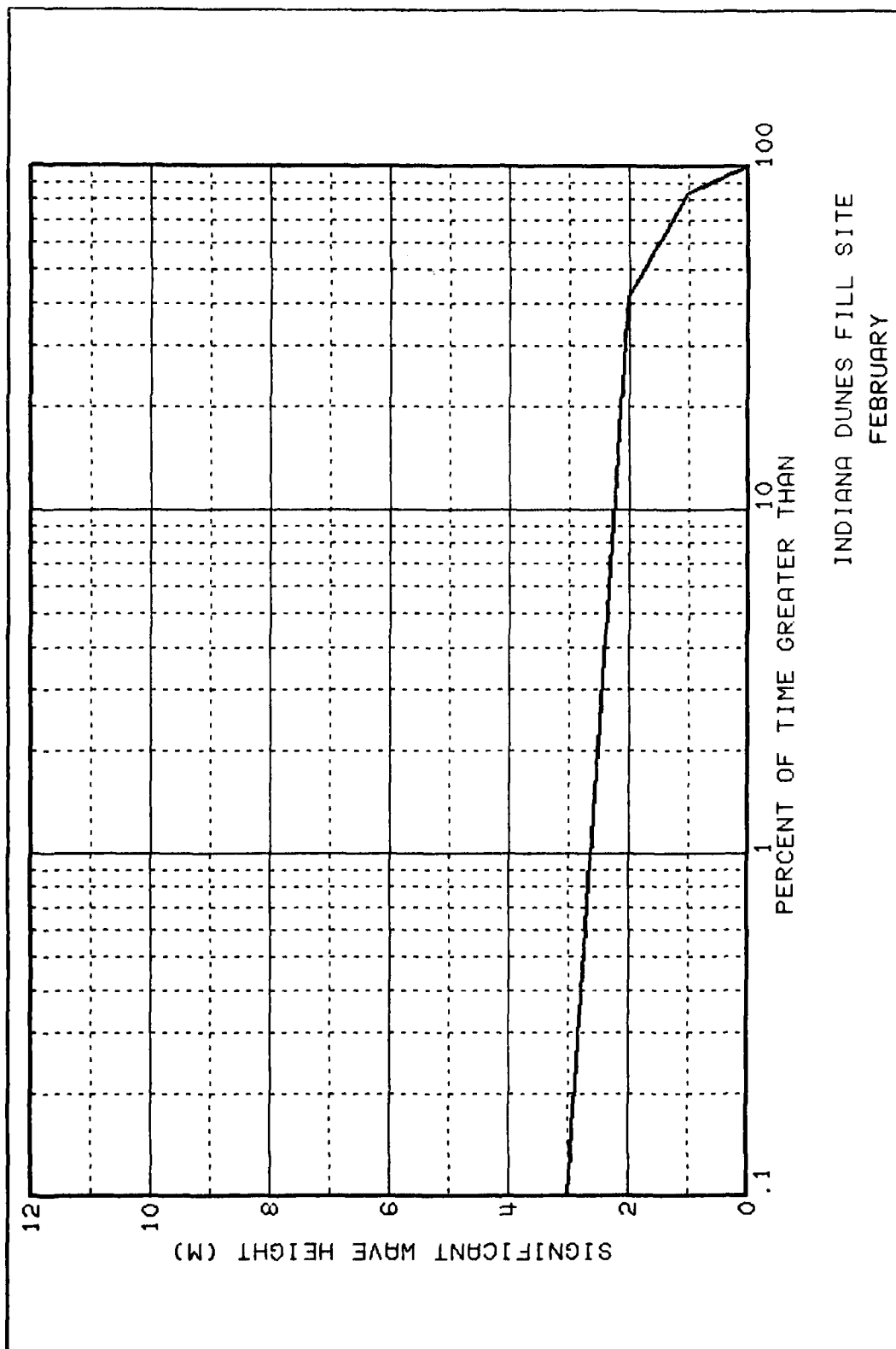
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JANUARY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	8.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.76
01-02	53.03	5.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	58.34
02-03	8.58	16.31	7.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.90
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	70.37	22.22	7.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



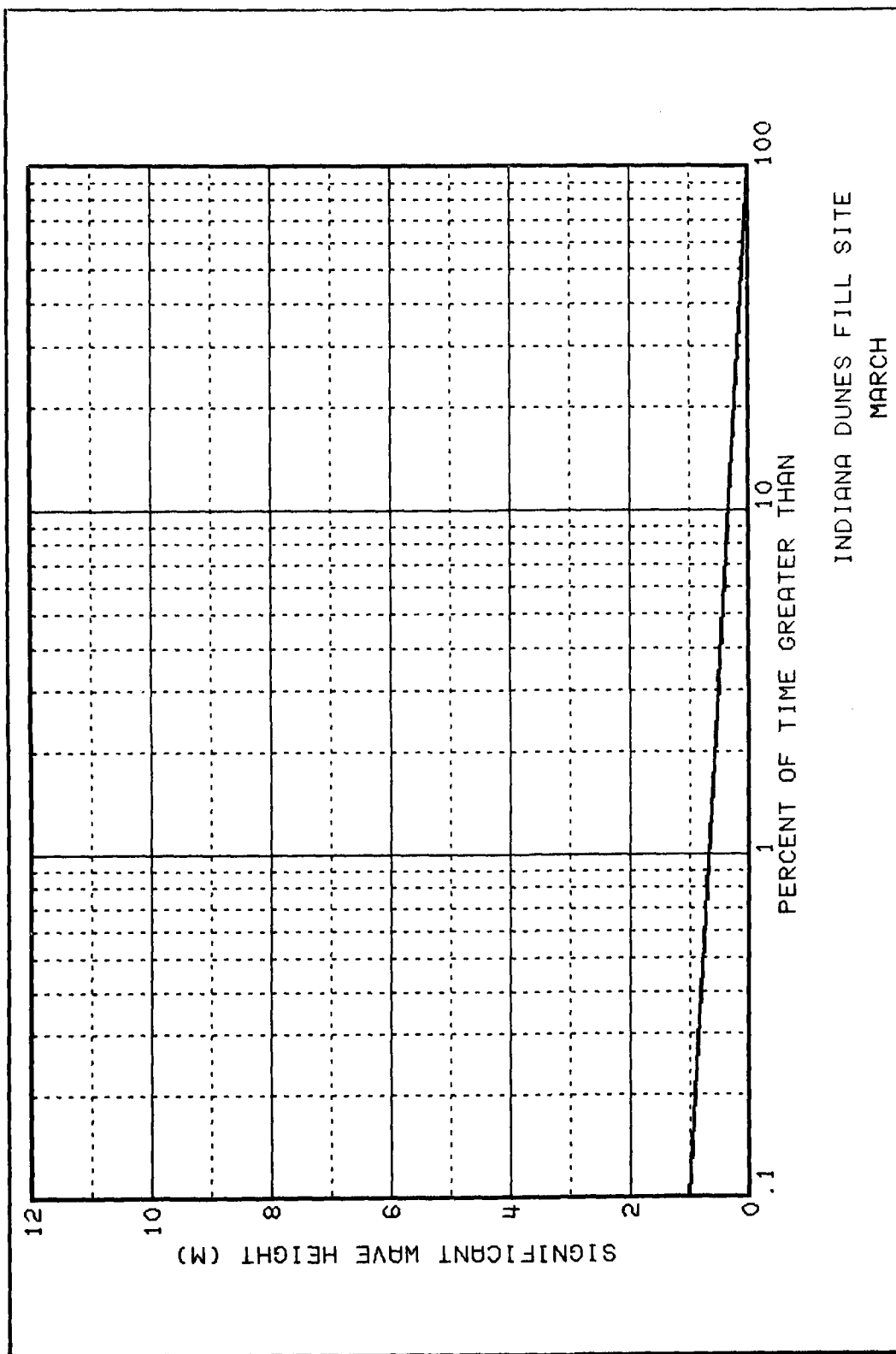
INDIANA DUNES FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	16.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.54
01-02	33.46	7.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.41
02-03	0.00	25.38	0.00	0.00	16.67	0.00	0.00	0.00	0.00	0.00	42.05
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	50.00	33.33	0.00	0.00	16.67	0.00	0.00	0.00	0.00	0.00	



INDIANA DUNES FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MARCH

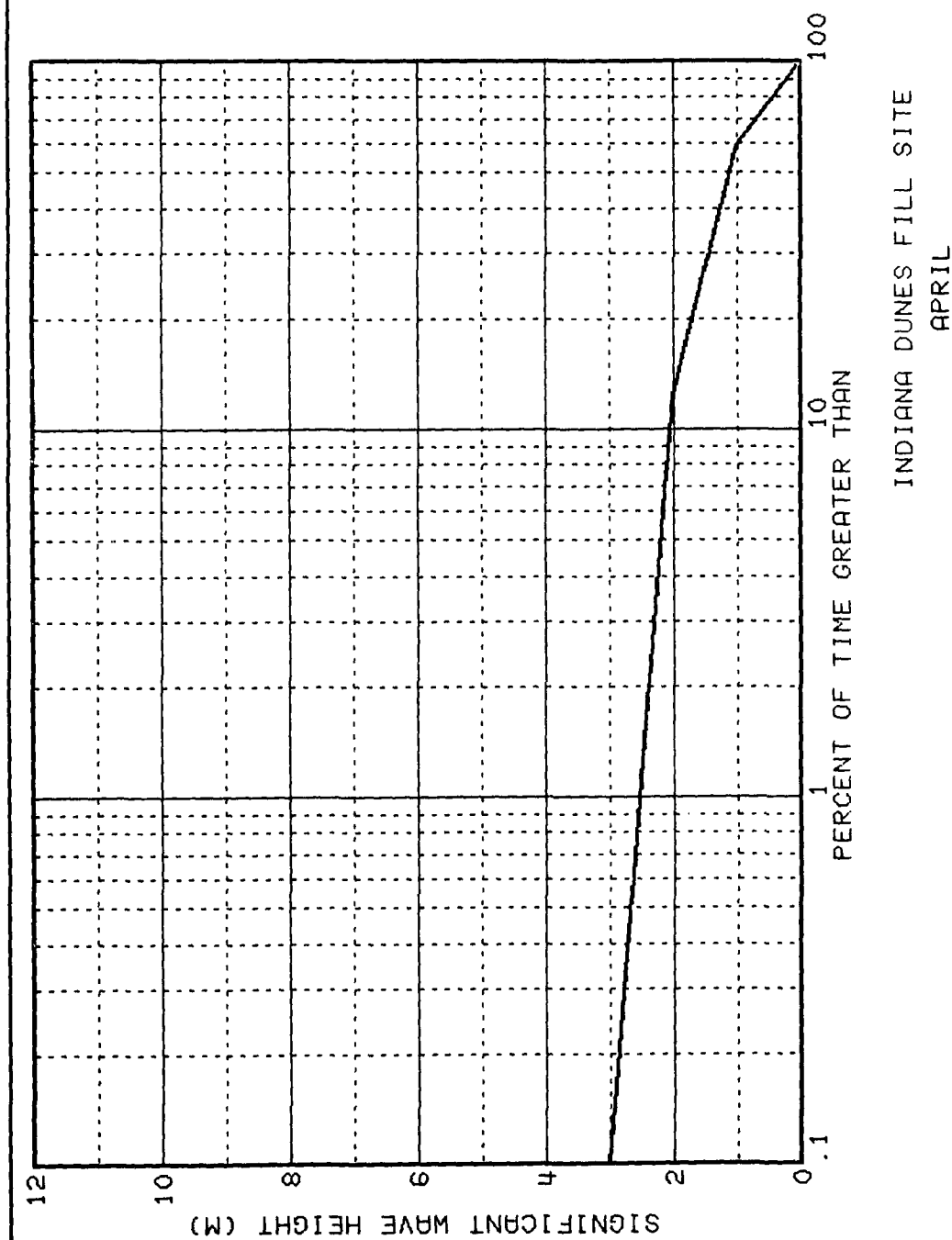
HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01-02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02-03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



INDIANA DUNES FILL SITE

CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR APRIL

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	31.10	4.99	3.14	1.21	0.00	0.00	0.00	0.00	0.00	0.00	40.43
01-02	36.17	6.20	4.17	0.61	0.00	0.00	0.00	0.00	0.00	0.00	47.14
02-03	0.00	7.00	5.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.42
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	67.27	18.18	12.73	1.82	0.00	0.00	0.00	0.00	0.00	0.00	

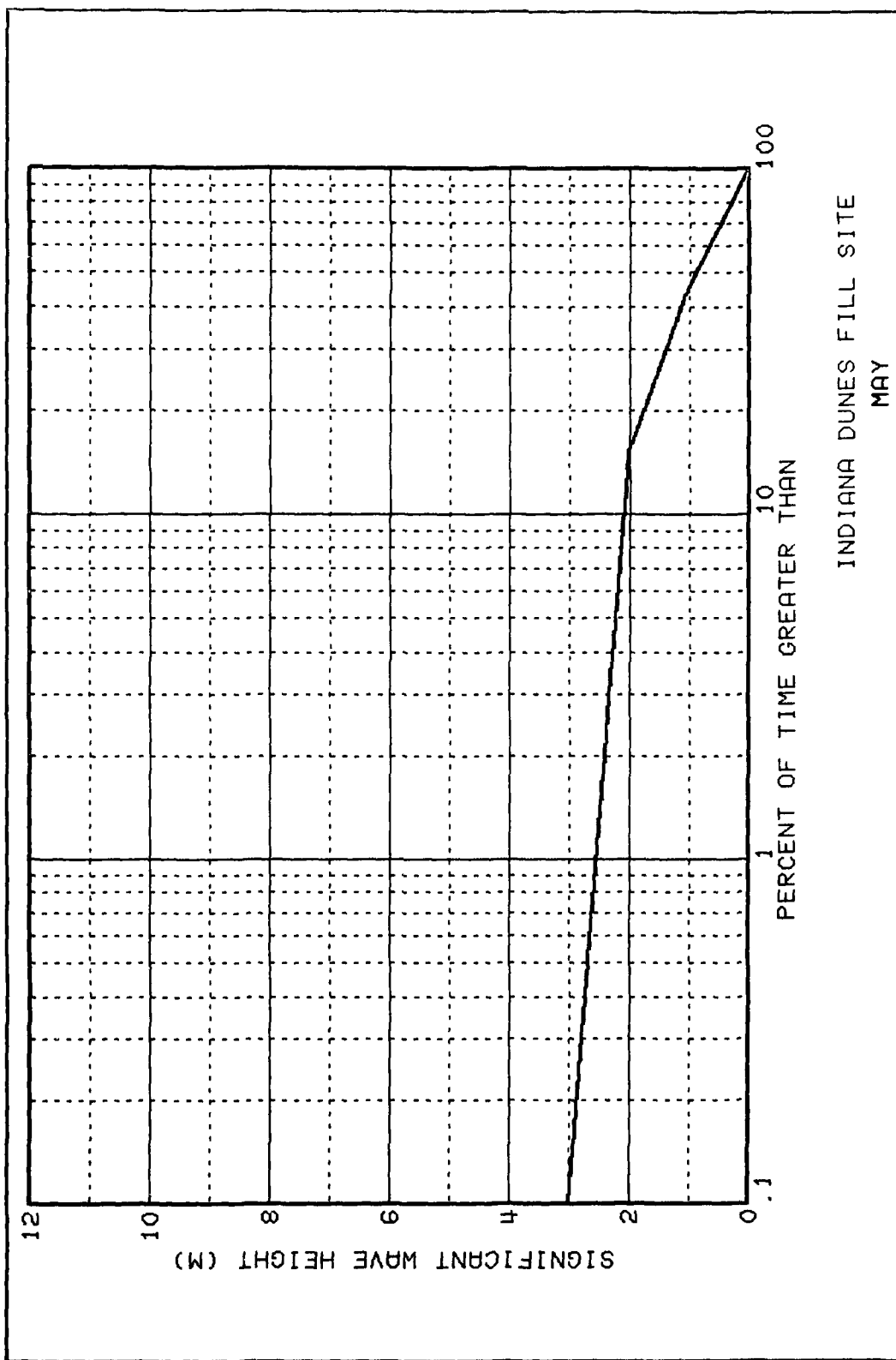


INDIANA DUNES FILL SITE
APRIL

INDIANA DUNES FILL SITE

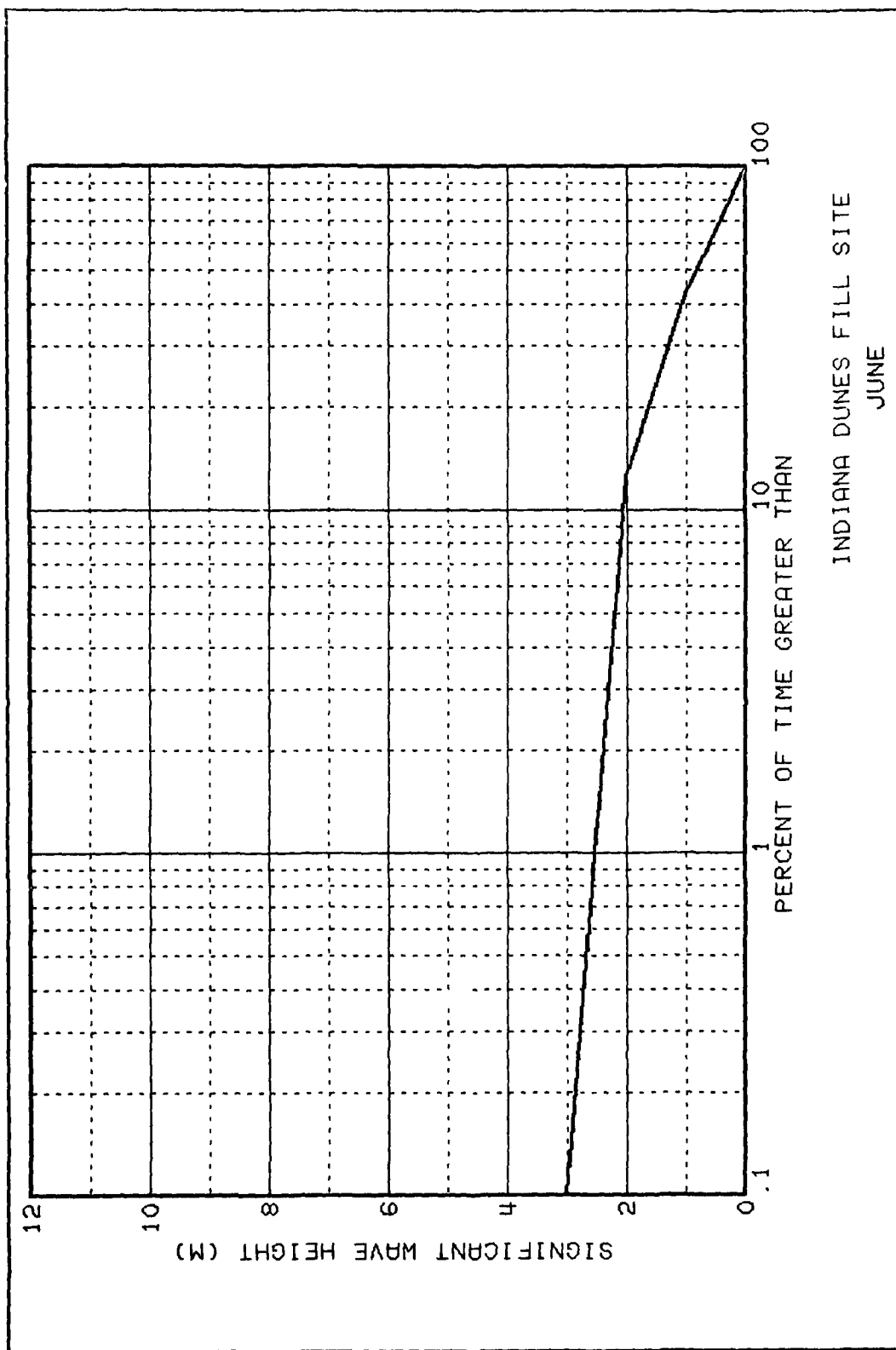
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	51.29	1.89	0.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.99
01-02	27.20	1.68	1.73	0.22	0.00	0.00	0.00	0.00	0.00	0.00	30.83
02-03	2.00	4.56	3.97	4.66	0.00	0.00	0.00	0.00	0.00	0.00	15.18
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	80.49	8.13	6.50	4.88	0.00	0.00	0.00	0.00	0.00	0.00	



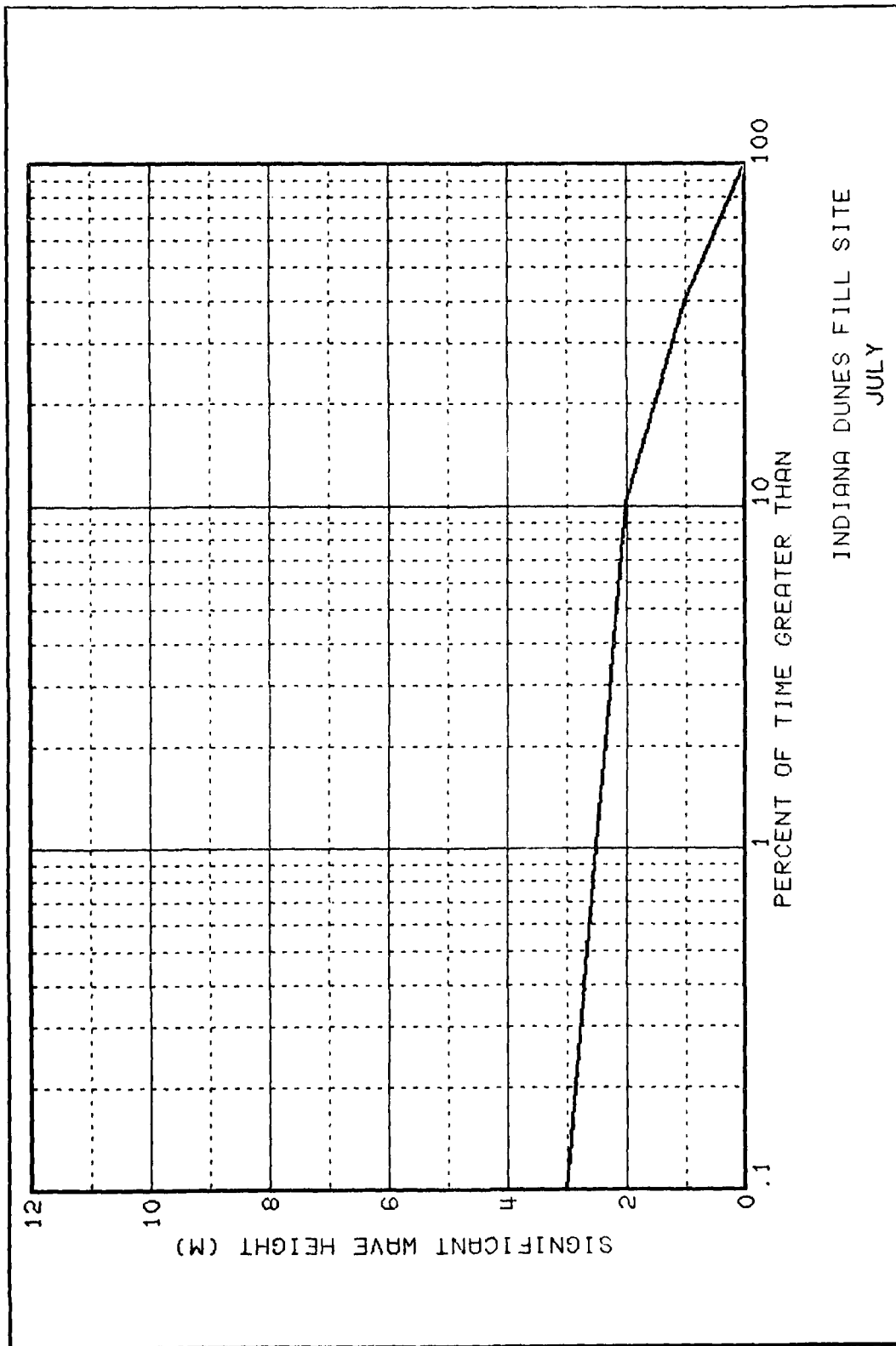
INDIANA DUNES FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	55.08	2.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57.49
01-02	25.01	4.17	0.32	0.00	0.43	0.00	0.00	0.00	0.00	0.00	29.94
02-03	2.98	6.50	2.76	0.00	0.34	0.00	0.00	0.00	0.00	0.00	12.57
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	83.08	13.07	3.03	0.00	0.77	0.00	0.00	0.00	0.00	0.00	



INDIANA DUNES FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

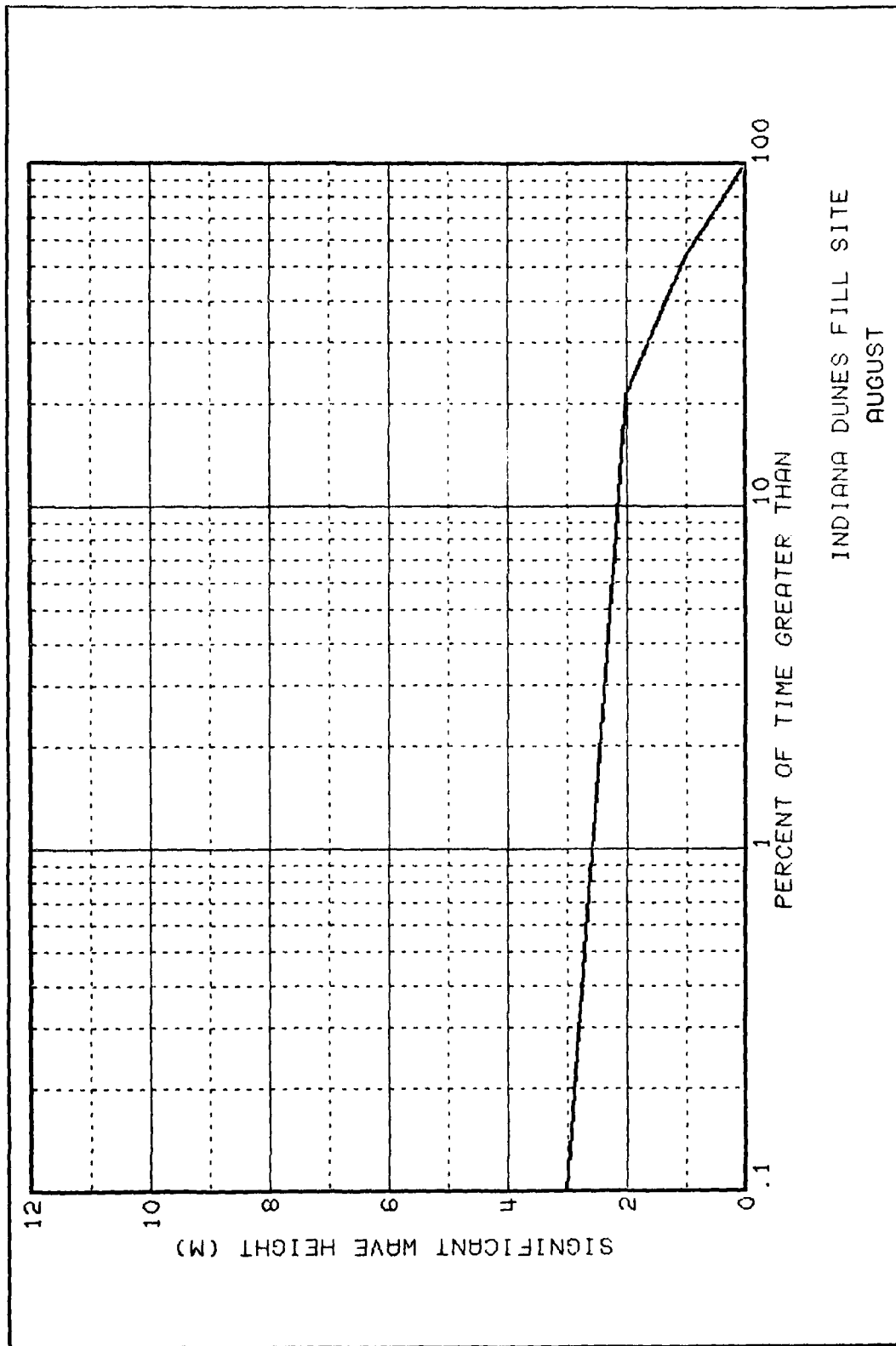
HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	57.39	2.42	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.35	
01-02	26.98	1.53	0.60	0.22	0.00	0.00	0.00	0.00	0.00	0.00	29.33	
02-03	2.73	4.12	2.08	1.39	0.00	0.00	0.00	0.00	0.00	0.00	10.32	
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	87.10	8.07	3.22	1.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	



INDIANA DUNES FILL SITE

CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

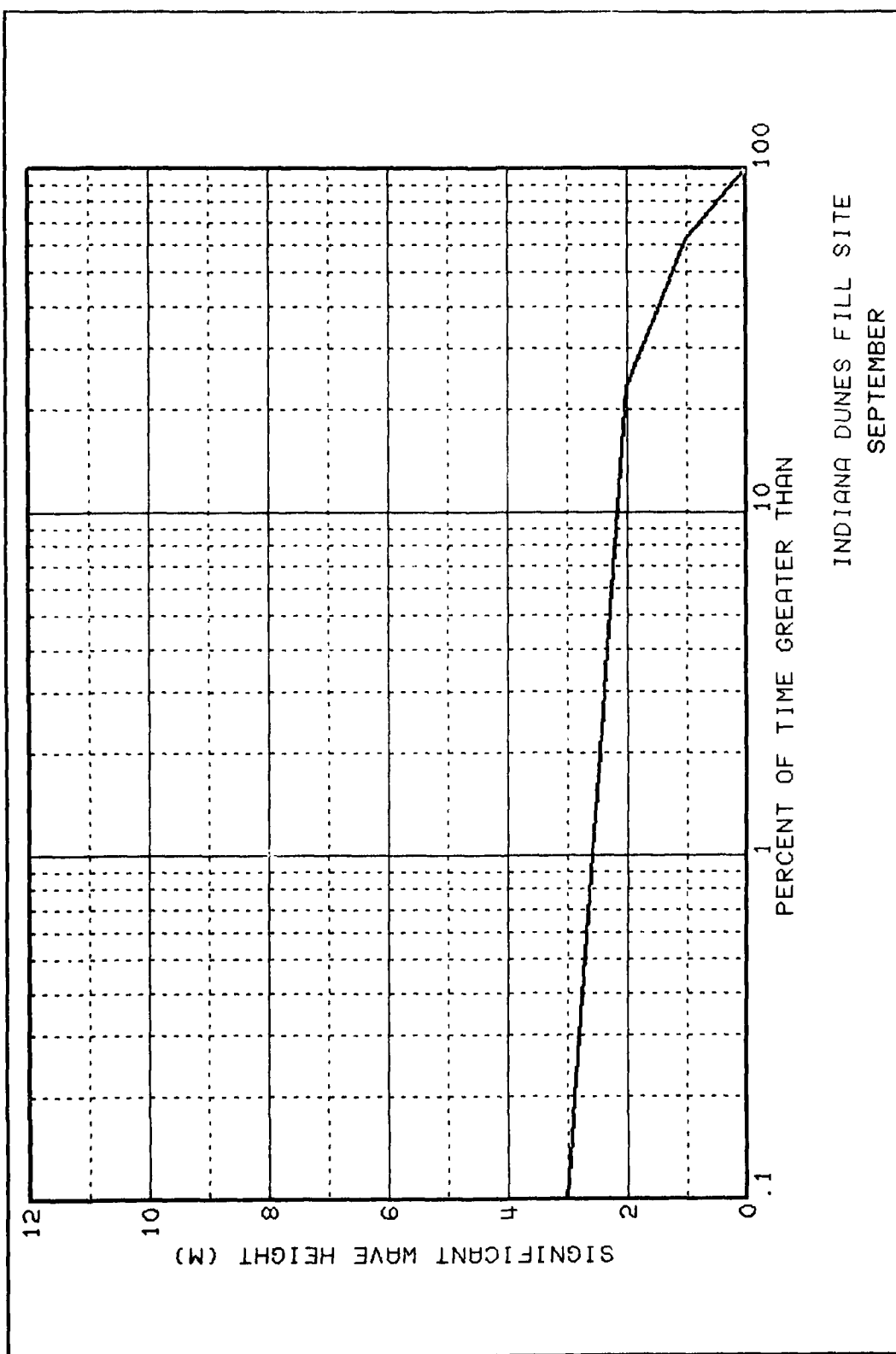
HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	42.76	2.52	0.69	0.39	0.00	0.00	0.00	0.00	0.00	0.00	46.36
01-02	25.54	5.16	1.48	0.36	0.00	0.00	0.00	0.00	0.00	0.00	32.54
02-03	3.30	10.07	3.74	3.39	0.59	0.00	0.00	0.00	0.00	0.00	21.10
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	71.60	17.75	5.91	4.15	0.59	0.00	0.00	0.00	0.00	0.00	



INDIANA DUNES FILL SITE

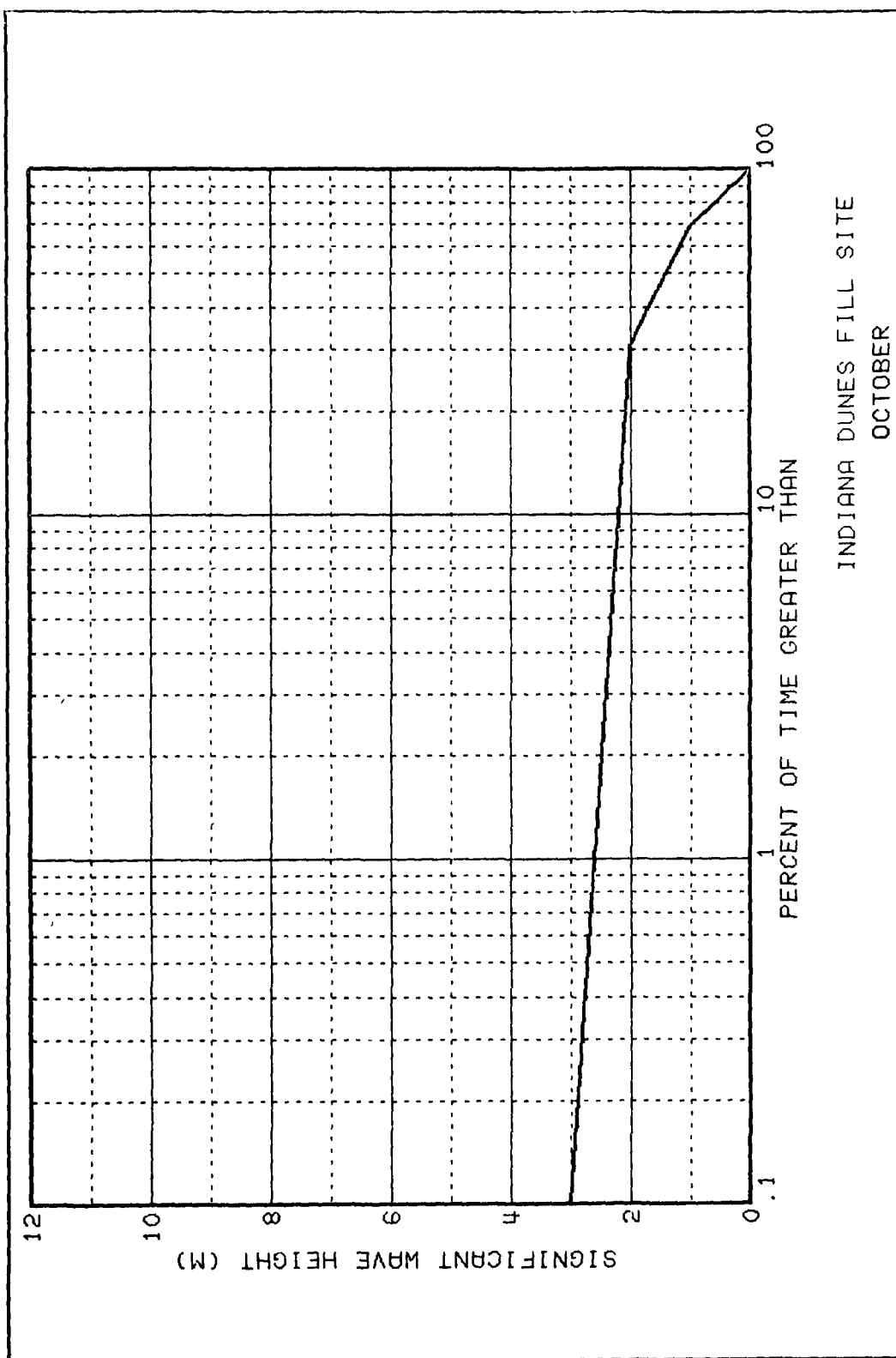
CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER

HEIGHT (M)	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	TOTAL
00-01	34.54	2.90	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	37.57
01-02	32.82	3.12	2.05	1.11	0.07	0.00	0.00	0.00	0.00	0.00	39.16
02-03	5.10	11.37	3.62	0.34	0.66	0.73	0.73	0.72	0.00	0.00	23.27
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	72.47	17.39	5.30	1.45	0.72	0.73	0.73	0.72	0.00	0.00	



INDIANA DUNES FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

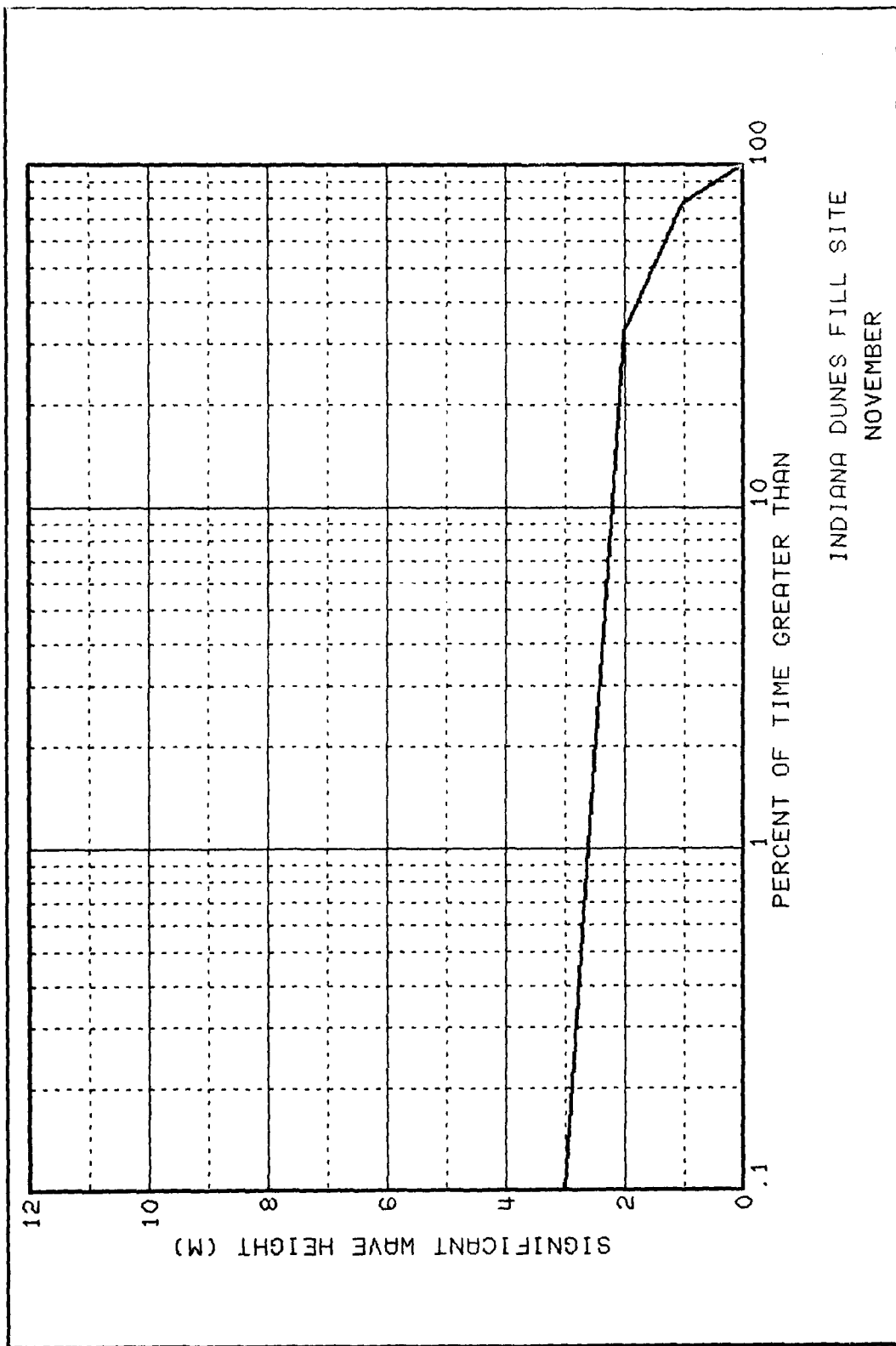
HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	29.75	1.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31.52
01-02	32.64	4.25	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	37.88
02-03	9.63	12.09	6.98	1.45	0.00	1.45	0.00	0.00	0.00	0.00	30.60
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	71.01	18.11	7.97	1.45	0.00	1.45	0.00	0.00	0.00	0.00	



INDIANA DUNES FILL SITE

CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER

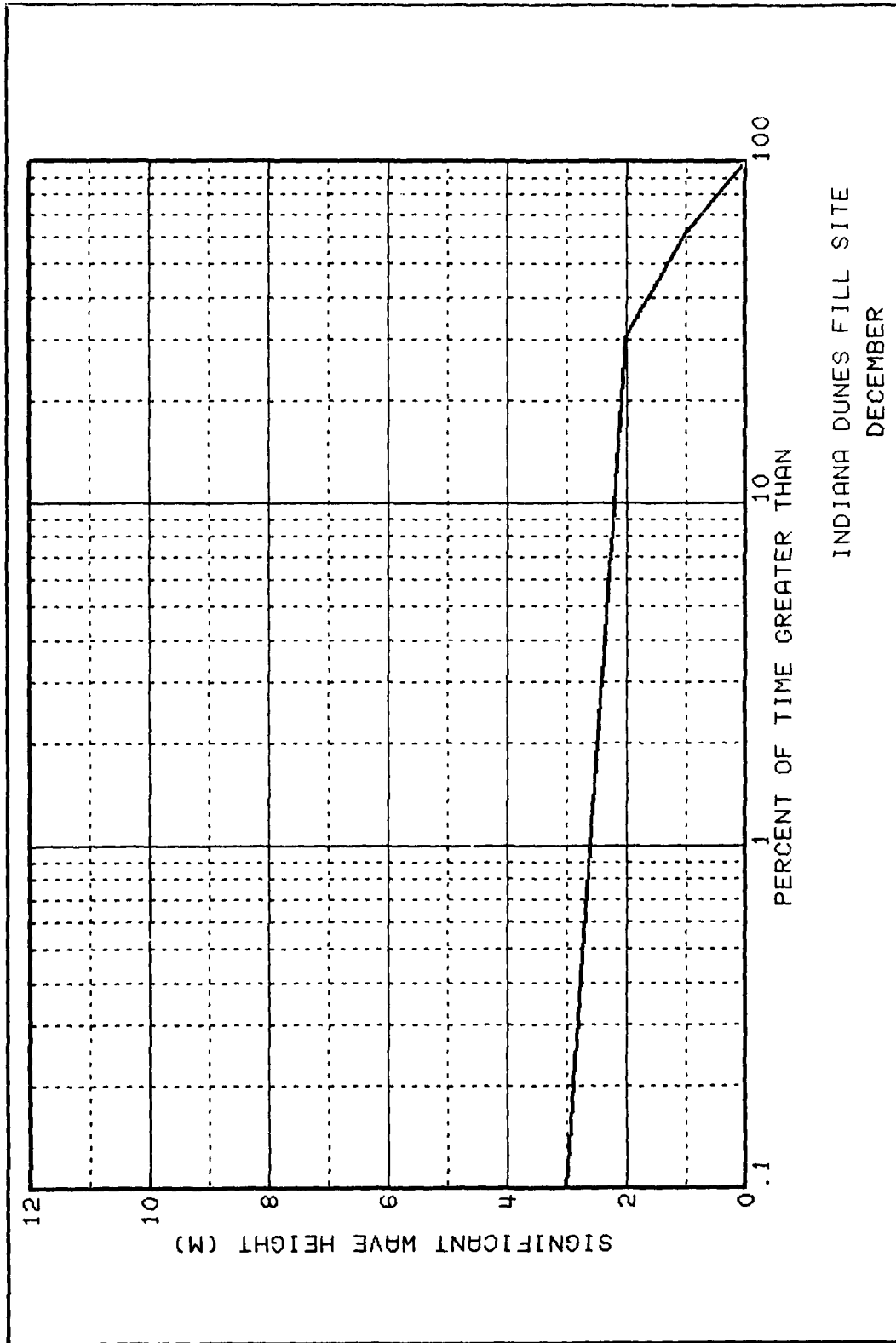
HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	20.87	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.93
01-02	37.62	3.59	3.41	0.71	0.00	0.00	0.00	0.00	0.00	0.00	45.32
02-03	7.47	12.37	5.10	5.67	0.71	0.71	0.71	0.00	0.00	0.00	32.74
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	65.96	17.02	8.51	6.33	0.71	0.71	0.71	0.00	0.00	0.00	0.00



INDIANA DUNES FILL SITE

CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	29.73	7.46	1.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.63
01-02	26.43	4.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.50
02-03	9.51	12.35	4.43	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.82
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	65.67	23.83	5.97	4.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



INDIANA DUNES FILL SITE

CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD

WAVE DIRECTION = 300

HEIGHT (M)	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	TOTAL
00-01	6.04	0.05	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.15
01-02	7.95	0.46	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.56
02-03	1.04	1.81	0.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.44
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	15.03	2.32	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

INDIANA DUNES FILL SITE

CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD

WAVE DIRECTION = 330

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	6.04	0.17	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	6.23
01-02	7.40	0.86	0.36	0.06	0.01	0.00	0.00	0.00	0.00	0.00	8.69
02-03	1.59	3.71	0.89	0.71	0.26	0.09	0.00	0.09	0.00	0.00	7.34
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	15.03	4.74	1.25	0.89	0.27	0.09	0.00	0.09	0.00	0.00	

INDIANA DUNES FILL SITE
 CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
 WAVE DIRECTION = 6

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	9.38	0.53	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.36
01-02	7.54	2.11	1.01	0.30	0.05	0.00	0.00	0.00	0.00	0.00	11.01
02-03	1.24	3.80	2.74	1.67	0.13	0.27	0.18	0.00	0.00	0.00	10.02
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	18.15	6.44	4.20	1.07	0.10	0.27	0.10	0.00	0.00	0.00	

INDIANA DUNES FILL SITE

CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD

WAVE DIRECTION = 30

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	17.59	1.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.39
01-02	7.52	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.79
02-03	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	26.03	2.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

INDIANA DUNES FILL SITE

CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD

WAVE DIRECTION = 50

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01-02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02-03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

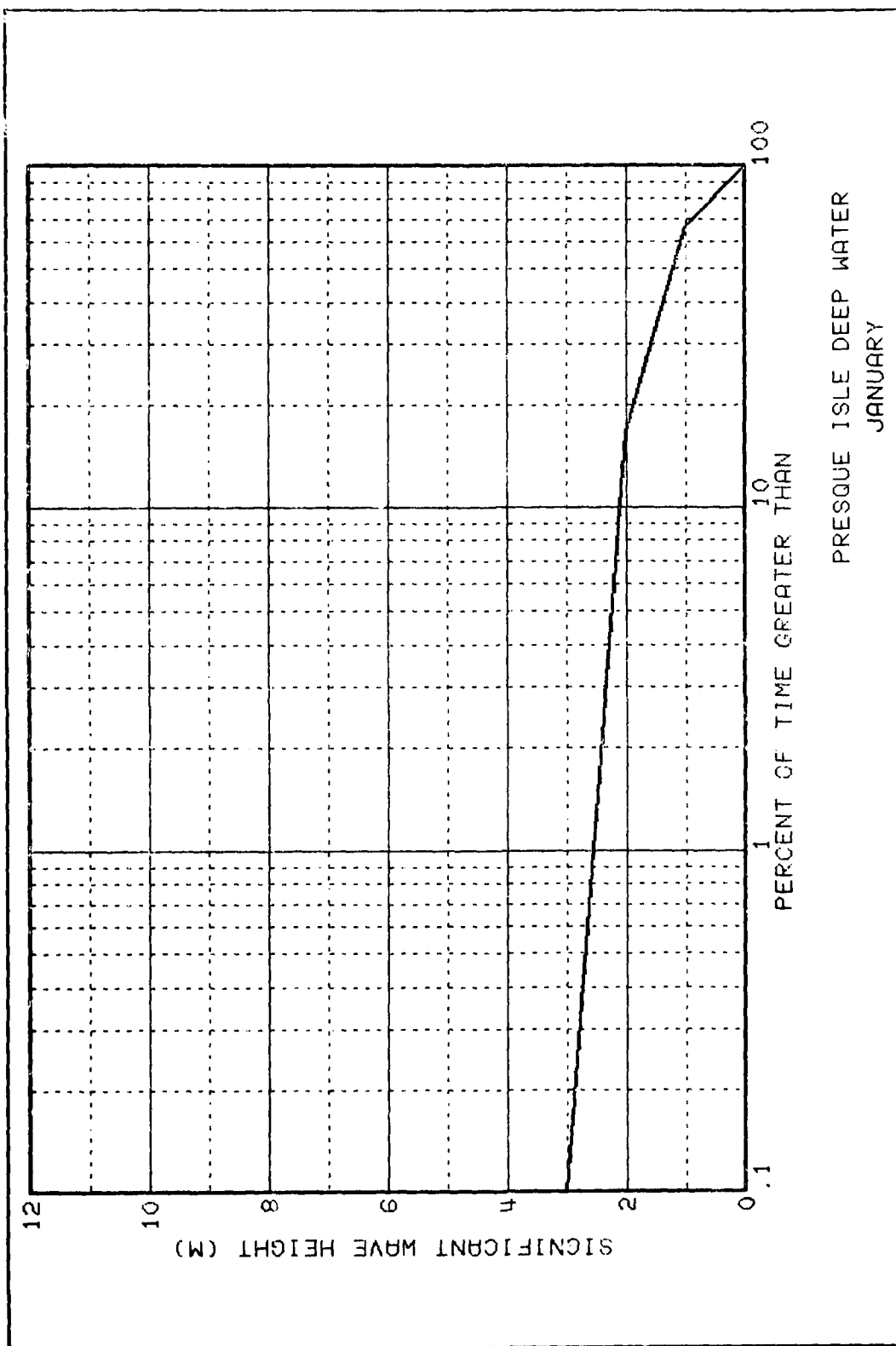
APPENDIX K: AVERAGE WAVE CLIMATE AT PRESQUE ISLE, PA.

1. Appendix K contains two sets of the following information. One set is for the sand borrow area at Presque Isle, Pa., (deep water), and the other set is for the fill area:

- a. Tabulations of monthly percent occurrence of wave-height/period combinations.
- b. Tabulations of annual percent occurrence by azimuth direction of wave-height/period combinations.
- c. Plots of monthly significant wave-height occurrence in terms of the total percent time per month that these heights are exceeded.

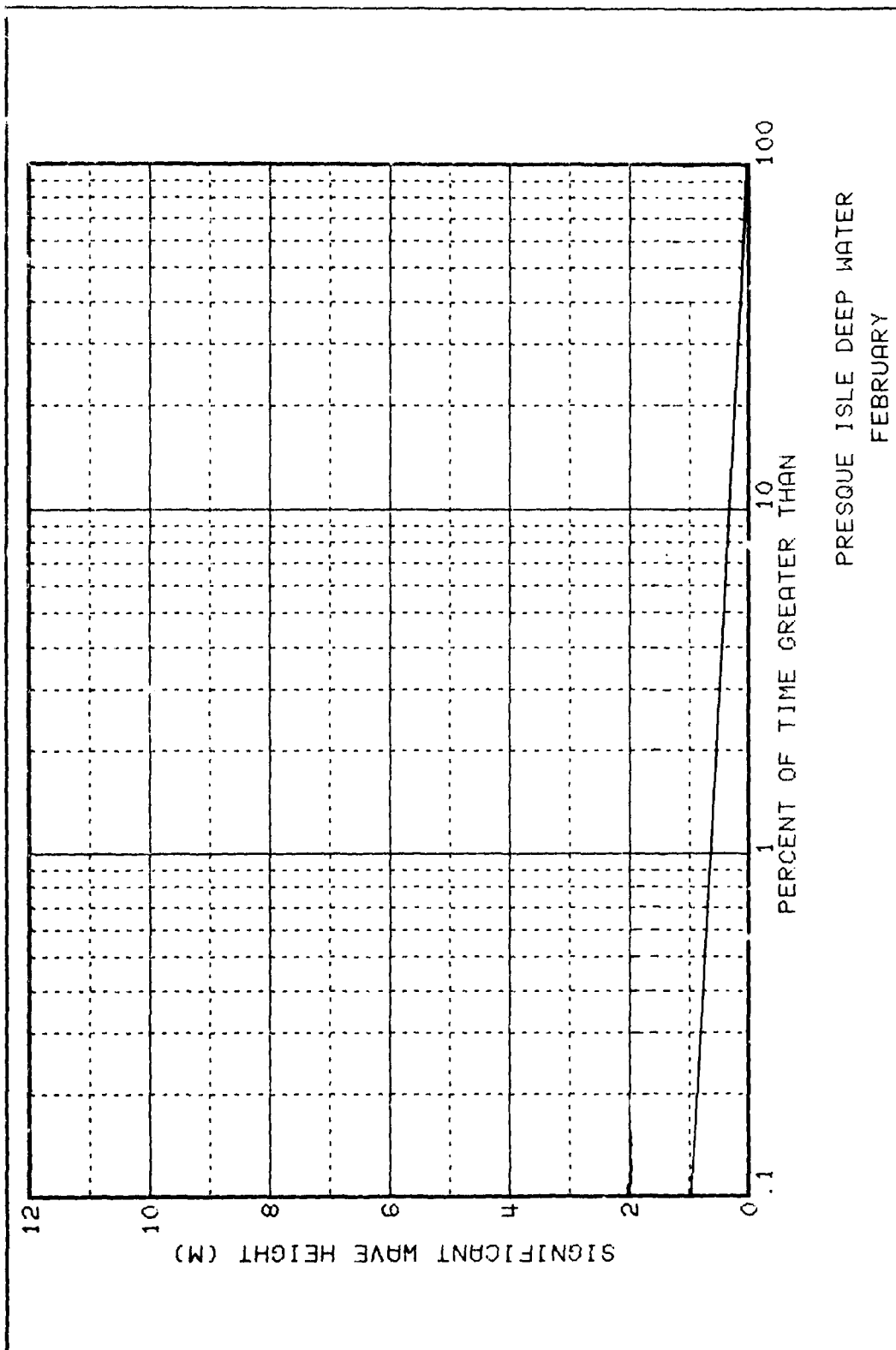
PRESQUE ISLE DEEP WATER
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JANUARY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	33.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.33
01-02	50.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00
02-03	0.00	16.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.67
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	83.33	16.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	



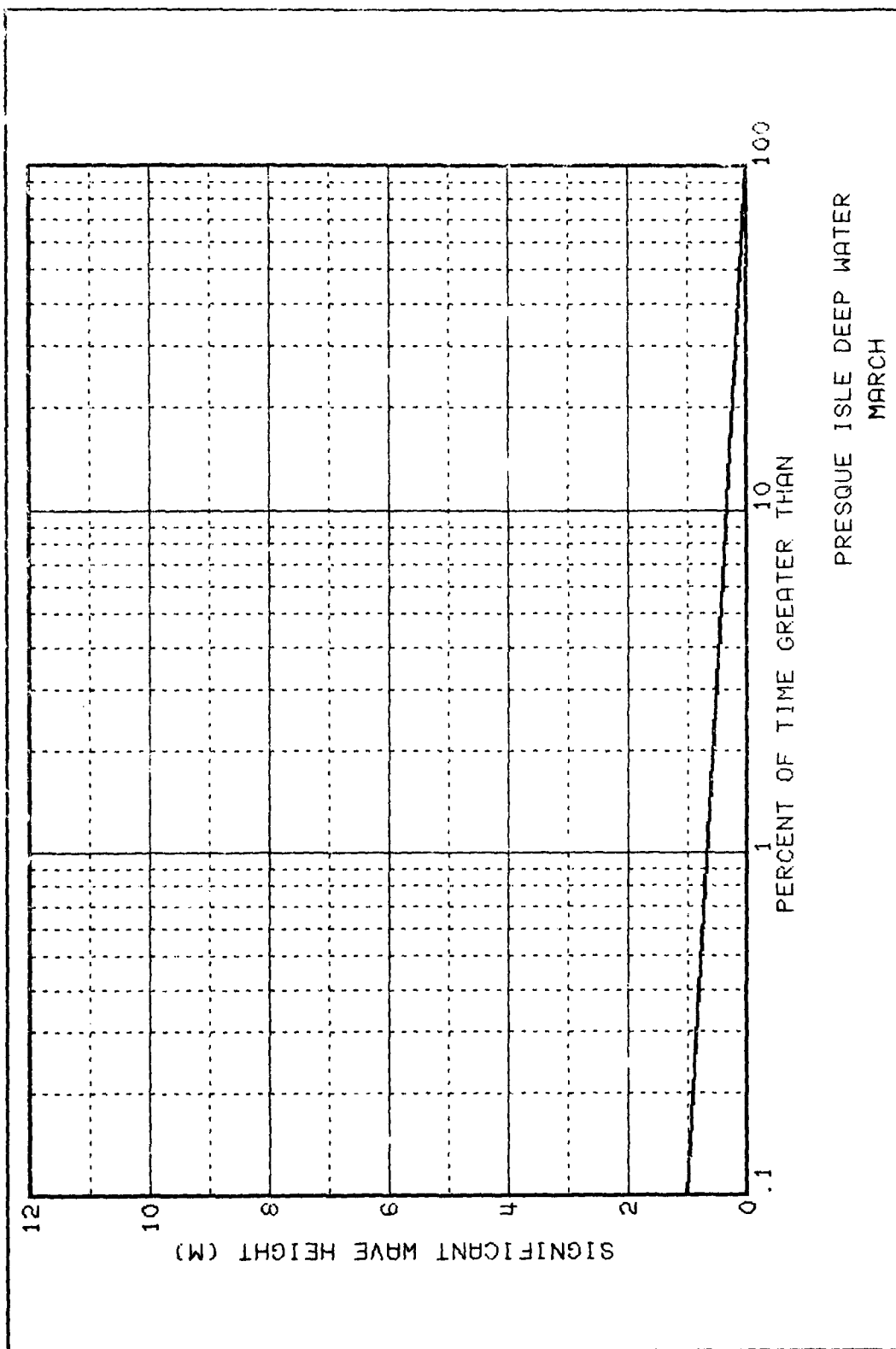
PRESQUE ISLE DEEP WATER
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01-02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00
02-03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	



PRESQUE ISLE DEEP WATER
CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MARCH

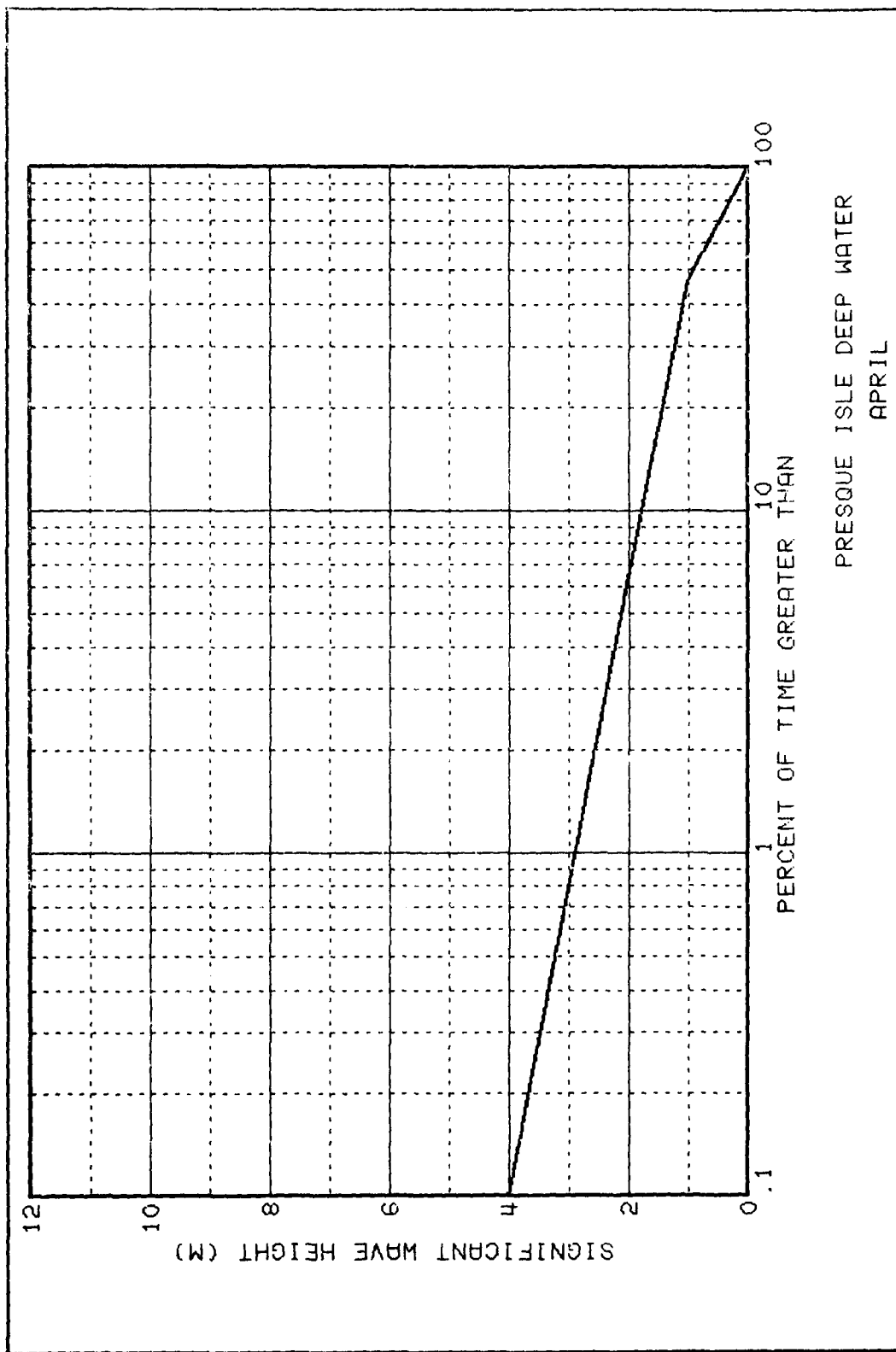
HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
01-02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02-03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



WAVE PERIODS

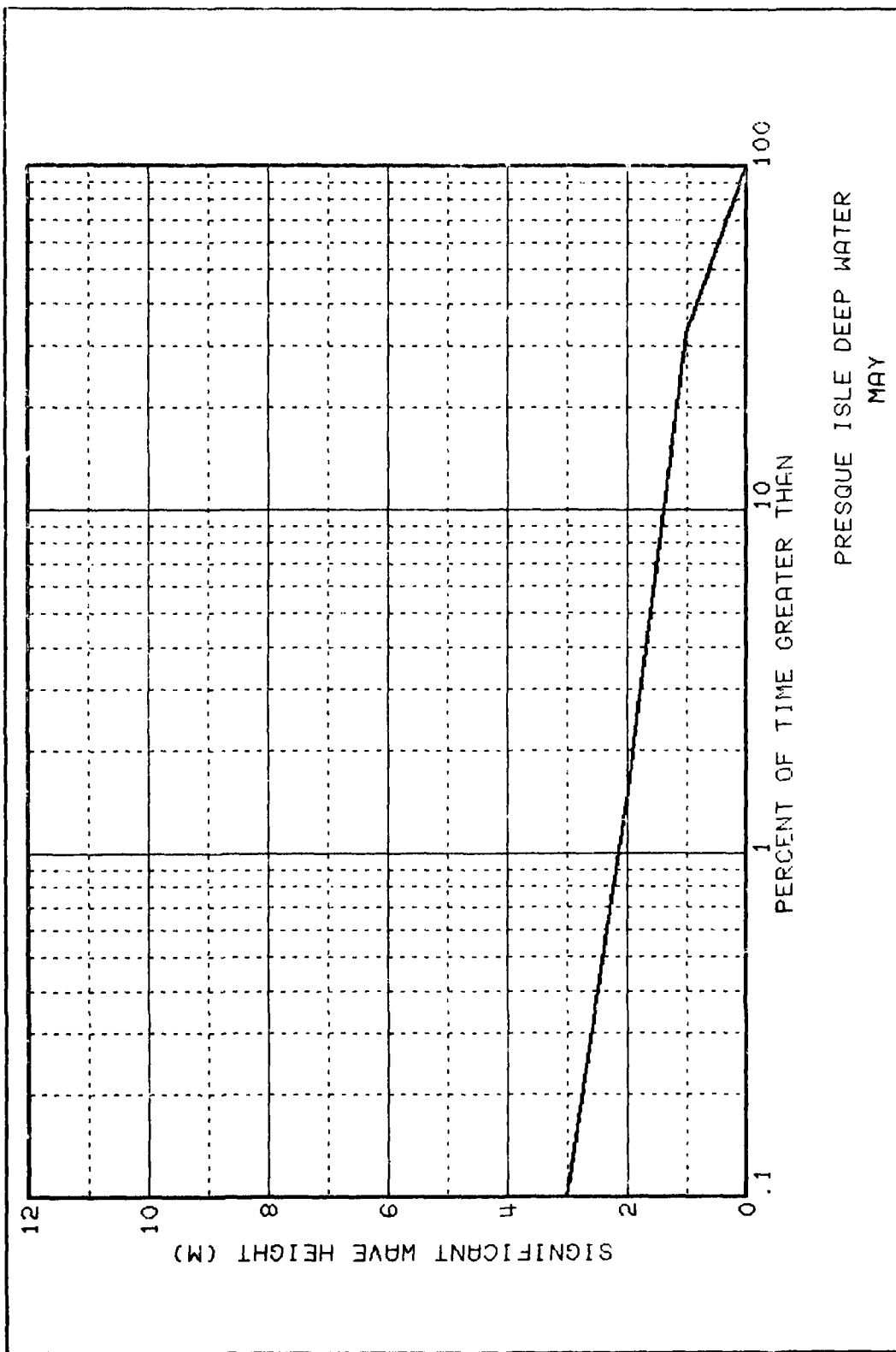
CUMULATIVE SEA WAVE PERIODS BY WAVE HEIGHT AND PERIOD FOR APRIL

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	52.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.38
01-02	33.63	0.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.42
02-03	3.87	1.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.40
03-04	0.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	96.82	2.33	0.00	0.79	0.00	0.00	0.00	0.00	0.00	0.00	99.64



PRESQUE ISLE DEEP WATER
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

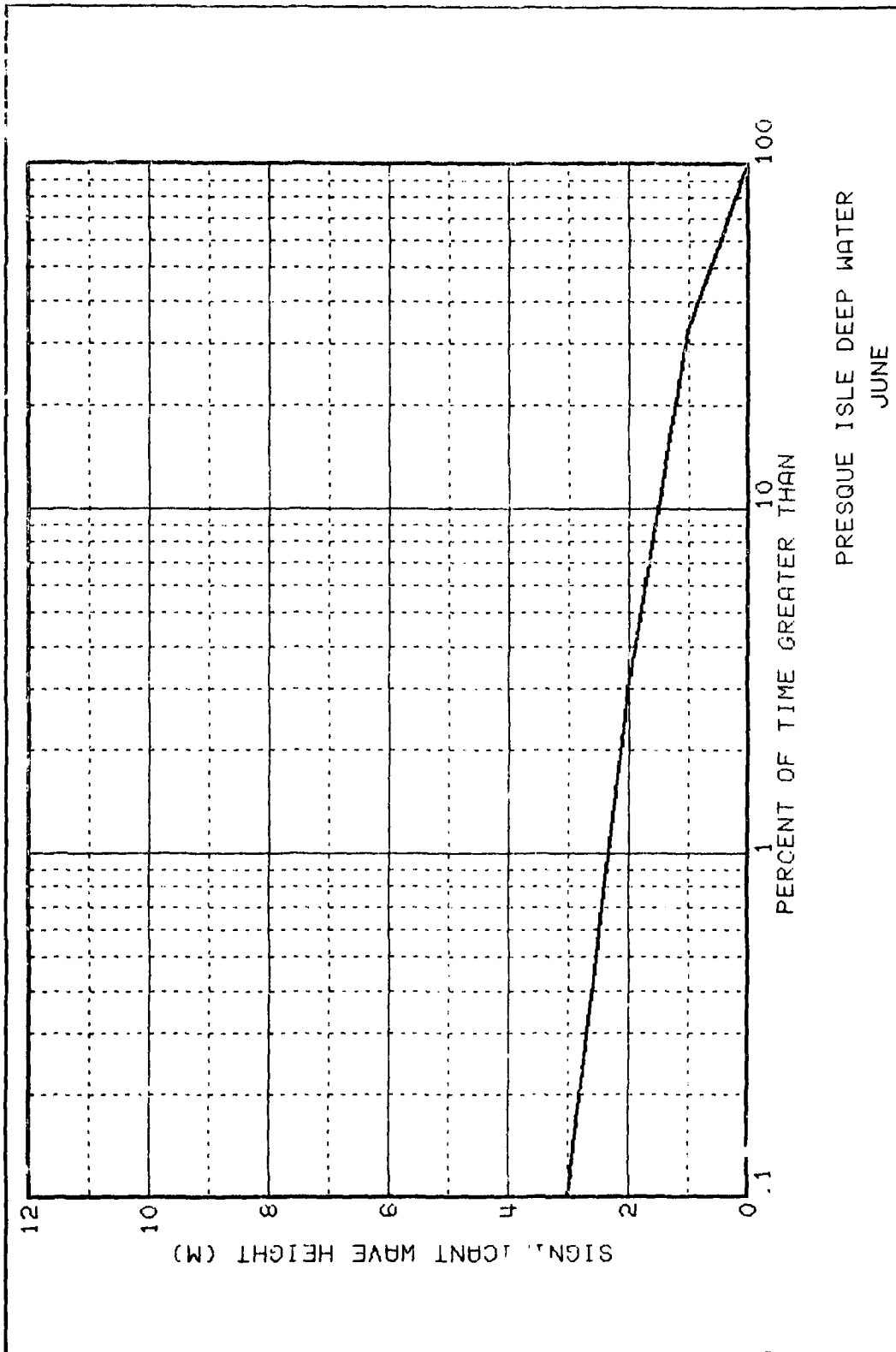
HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	55.57	1.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	67.45
01-02	27.36	2.23	0.00	0.47	0.47	0.00	0.00	0.00	0.00	0.00	31.13
02-03	0.94	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	93.97	5.19	0.00	0.47	0.47	0.00	0.00	0.00	0.00	0.00	0.00



PRESSURE LOGS FROM WATER

CUMULATIVE SEA / SWELL FREQUENCIES BY WAVE HEIGHT AND PERIOD FOR JUNE

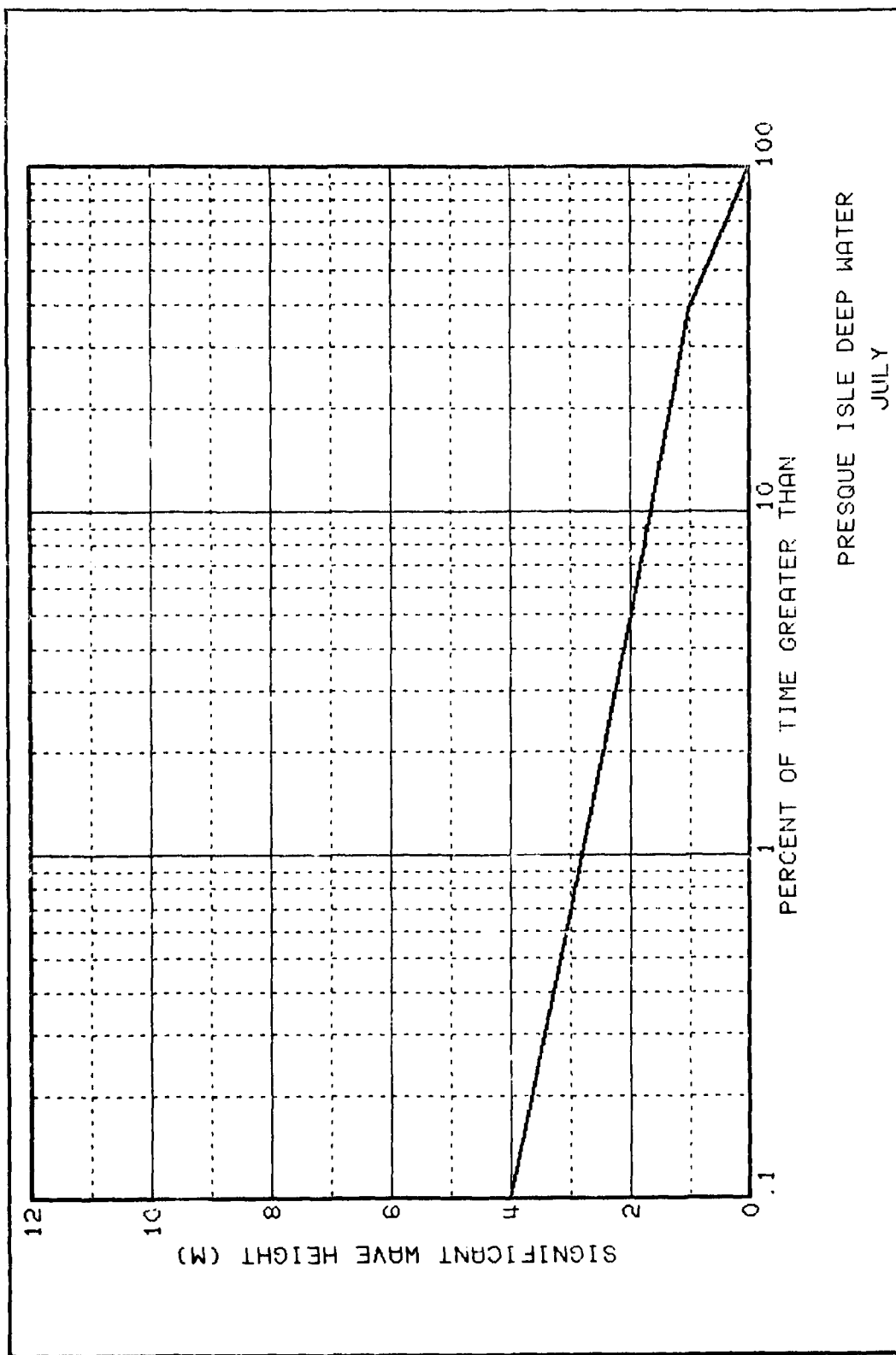
HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	9-10	10-12	12-14	14-16	15-18	18-20	20-22	>22	
00-01	63.43	1.37	0.37	0.37	0.00	0.00	0.00	0.00	0.75	0.37	67.15
01-02	28.12	2.61	1.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.85
02-03	1.12	0.75	0.75	0.37	0.00	0.00	0.00	0.00	0.00	0.00	2.35
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	90.67	5.22	2.24	0.75	0.00	0.00	0.00	0.00	0.75	0.37	



PRESQUE ISLE DEEP WATER

CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

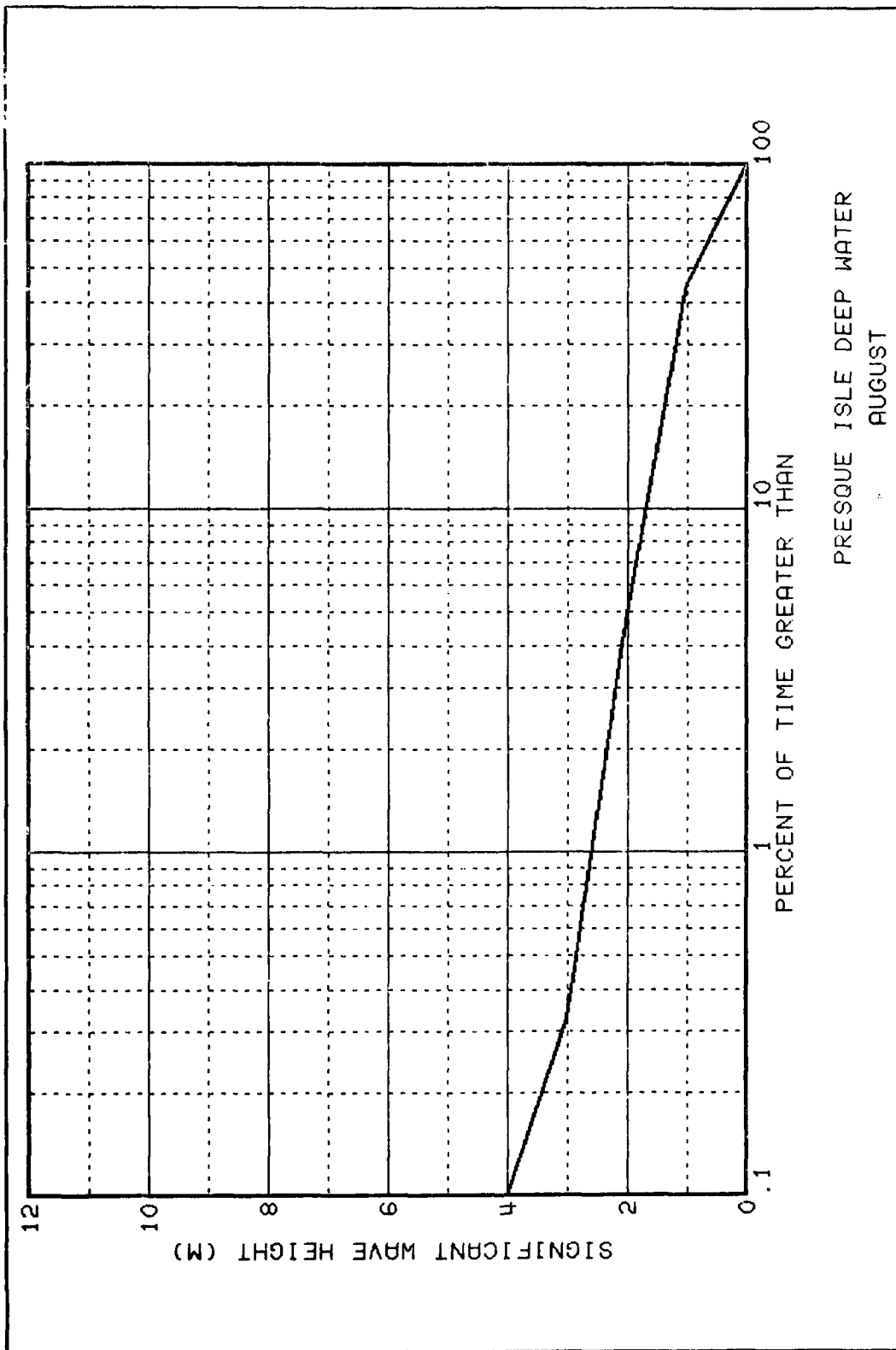
HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	58.98	2.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	61.35
01-02	30.17	3.05	0.34	0.34	0.00	0.00	0.00	0.00	0.00	0.00	33.50
02-03	2.71	1.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.07
03-04	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	92.54	6.44	0.34	0.34	0.00	0.00	0.00	0.00	0.00	0.34	



PRESQUE ISLE DEEP WATER

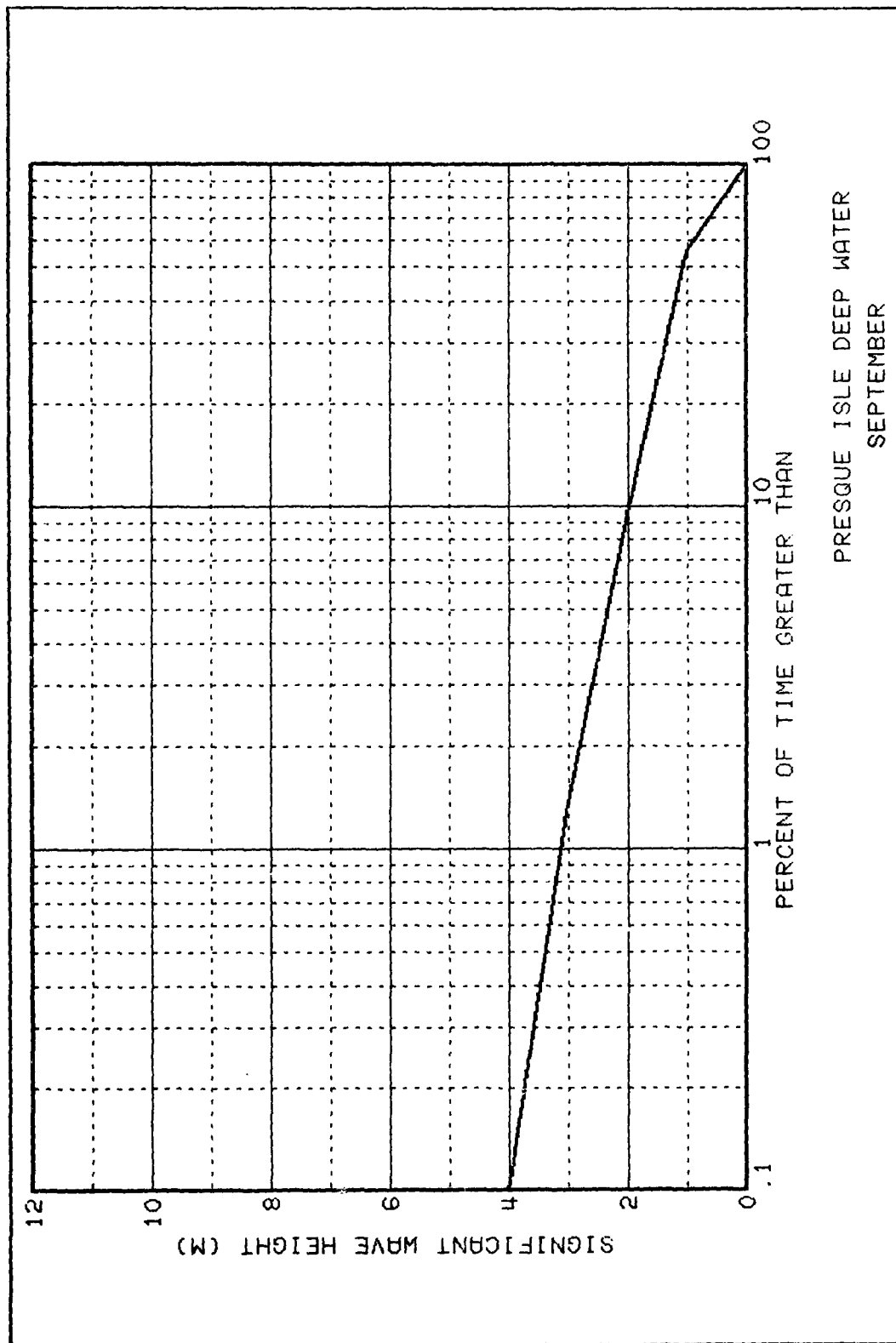
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	52.15	0.99	0.33	0.00	0.00	0.00	0.00	0.00	1.32	0.00	54.79
01-02	33.99	4.95	1.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.26
02-03	3.63	0.00	0.33	0.66	0.00	0.00	0.00	0.00	0.00	0.00	4.62
03-04	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	89.77	5.94	2.31	0.66	0.00	0.00	0.00	0.00	1.32	0.00	



PRESQUE ISLE DEEP WATER
CUMULATIVE SER / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER

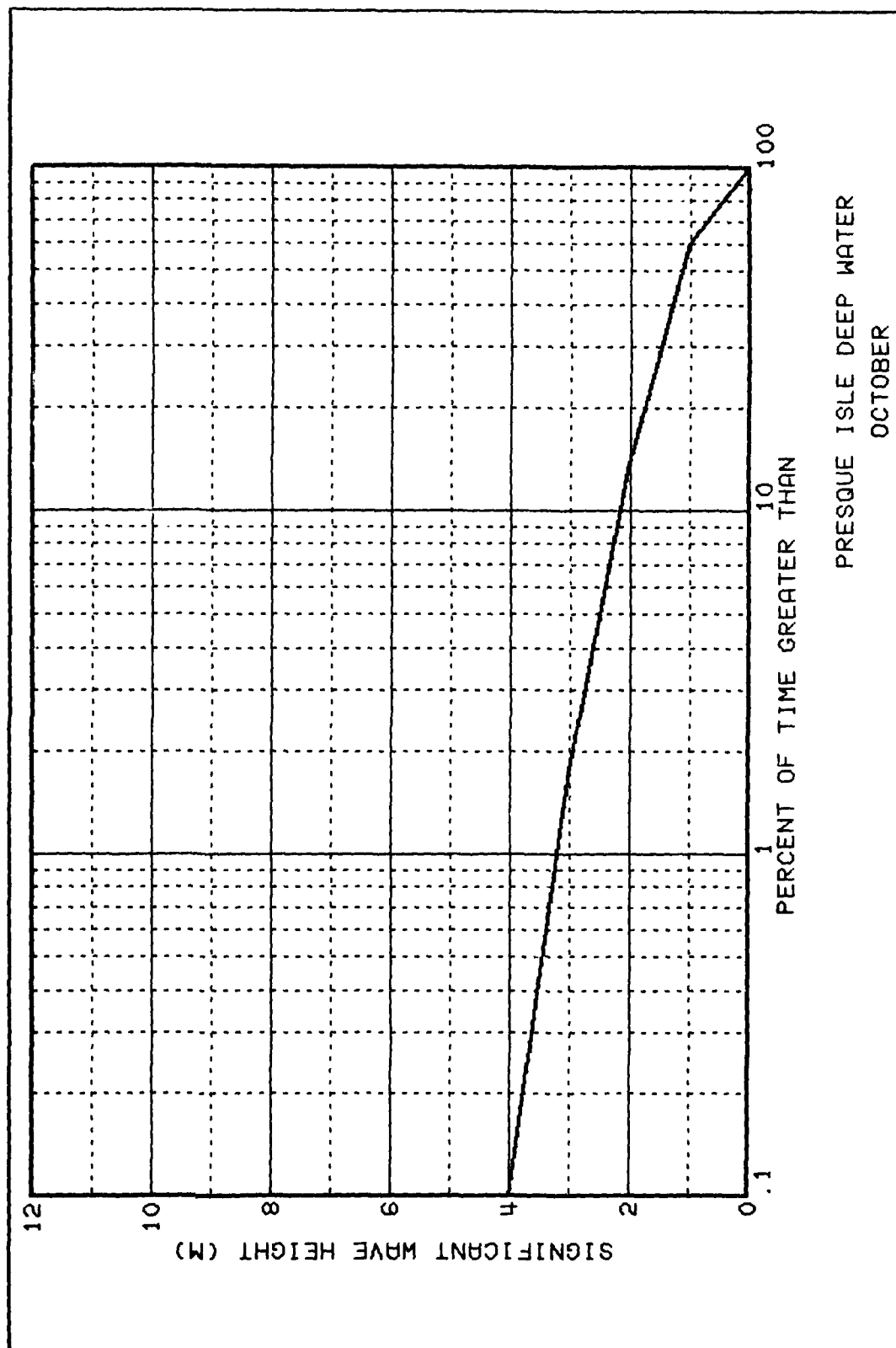
HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	41.64	1.37	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00		44.03
01-02	33.93	4.78	1.36	0.24	0.00	0.00	0.00	0.00	0.00	0.00		46.42
02-03	5.80	2.05	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00		8.19
03-04	0.00	1.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		1.37
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	87.37	9.56	2.33	0.69	0.00	0.00	0.00	0.00	0.00	0.00		0.00



PRESQUE ISLE DEEP WATER

CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

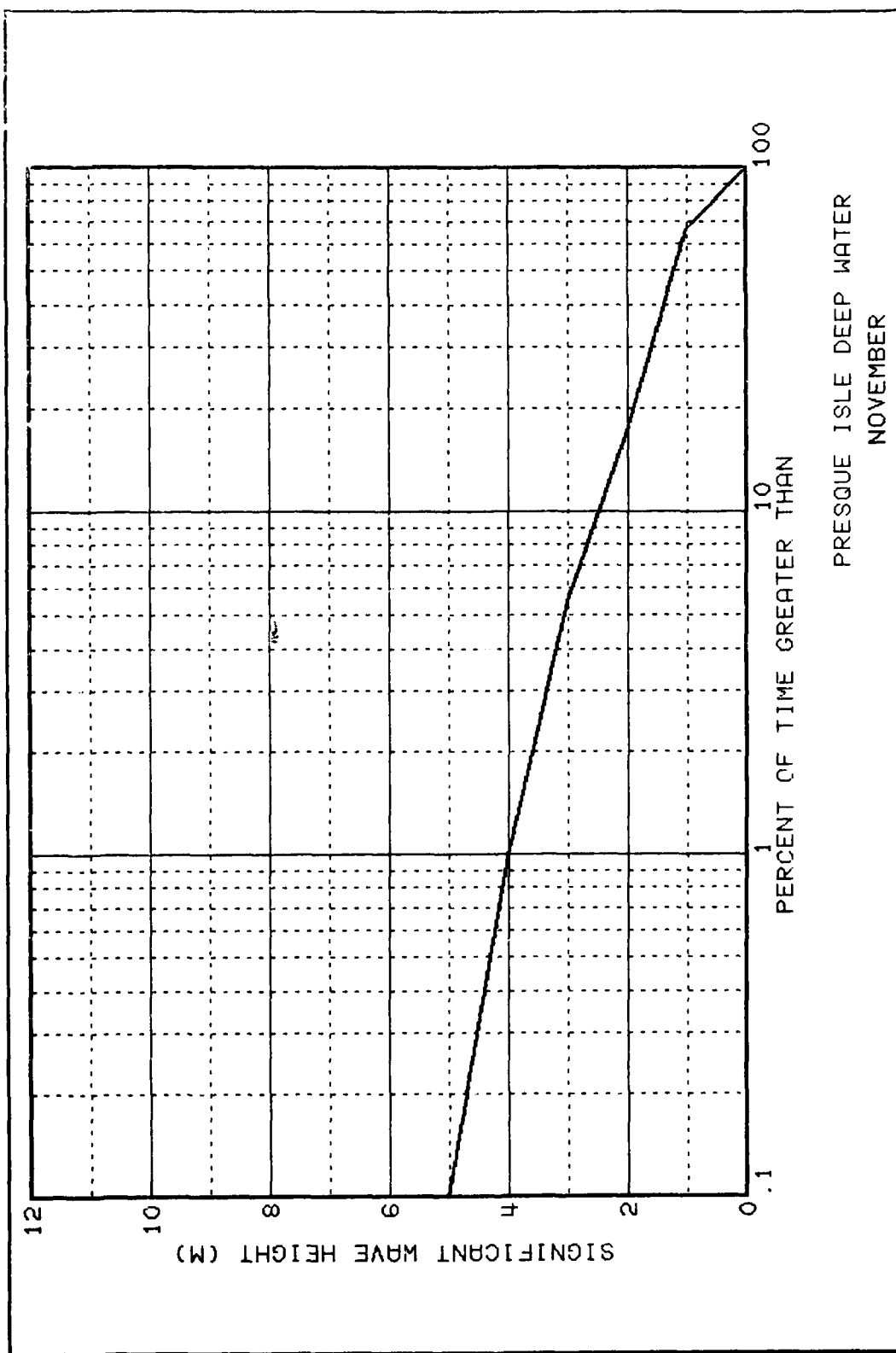
HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	39.44	0.00	0.00	0.00	0.35	0.00	0.00	0.00	0.00	0.35	40.14
01-02	38.38	4.23	2.46	1.06	0.00	0.00	0.00	0.00	0.00	0.00	46.13
02-03	6.63	2.46	1.76	1.06	0.00	0.00	0.00	0.00	0.00	0.00	11.97
03-04	1.41	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.76
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	85.92	7.04	4.23	2.11	0.35	0.00	0.00	0.00	0.00	0.35	



PRESQUE ISLE DEEP WATER

CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR NOVEMBER

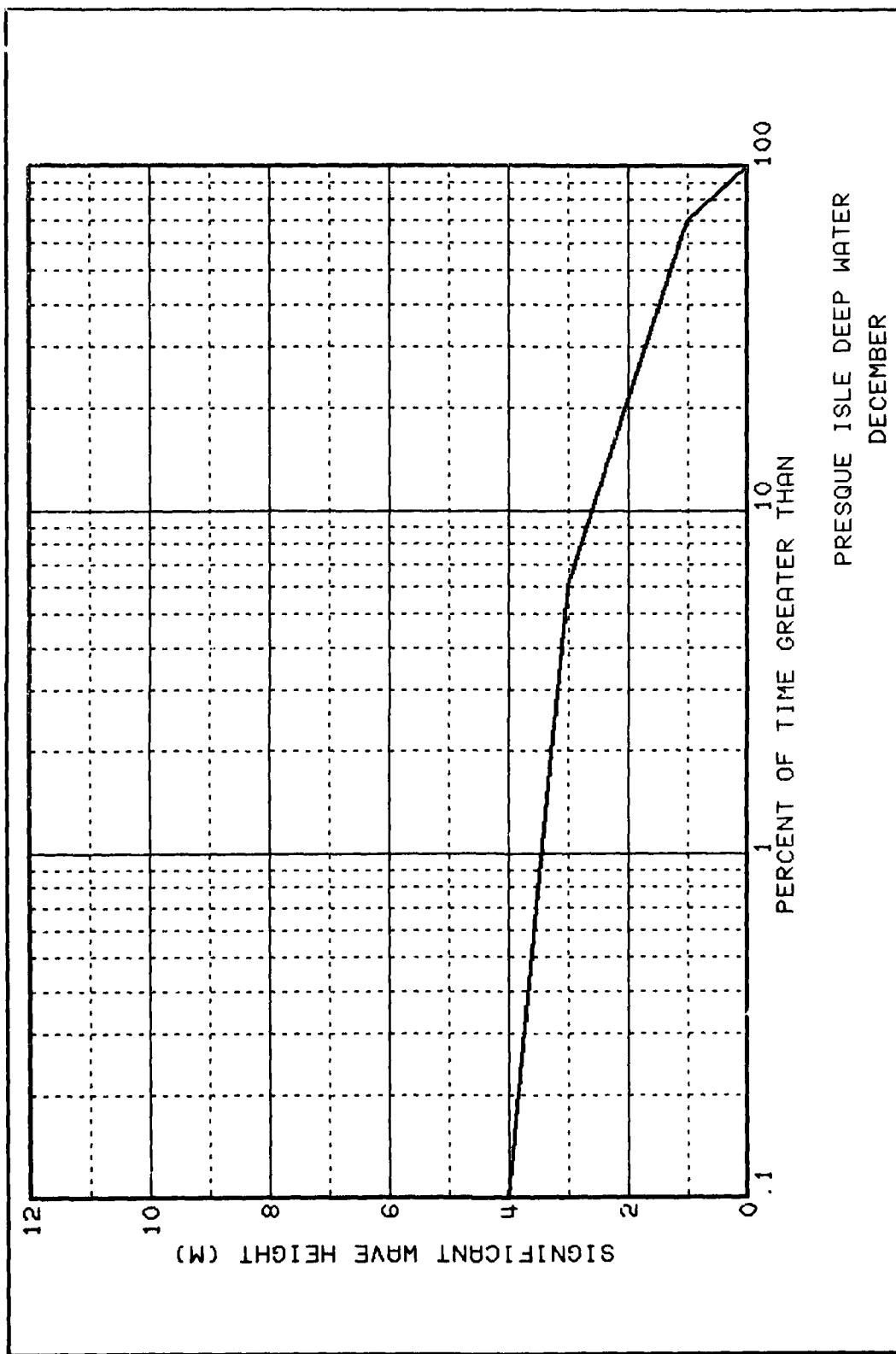
HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	32.84	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.58
01-02	42.54	4.97	0.75	0.75	0.00	0.00	0.00	0.00	0.00	0.25	49.25
02-03	5.72	3.98	1.74	0.00	0.25	0.00	0.00	0.00	0.00	0.00	11.69
03-04	0.50	2.74	0.99	0.25	0.00	0.00	0.00	0.00	0.00	0.00	4.48
04-05	0.00	0.25	0.25	0.00	0.25	0.25	0.00	0.00	0.00	0.00	0.99
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	81.59	12.68	3.73	0.99	0.50	0.25	0.00	0.00	0.00	0.25	



PRESQUE ISLE DEEP WATER

CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	30.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.40
01-02	42.57	4.73	0.67	0.00	0.68	0.00	0.00	0.00	0.00	0.00	48.65
02-03	7.43	5.41	1.35	0.68	0.00	0.00	0.00	0.00	0.00	0.00	14.87
03-04	4.05	2.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.08
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	84.46	12.17	2.03	0.68	0.68	0.00	0.00	0.00	0.00	0.00	



PRESQUE ISLE DEEP WATER

CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD

WAVE DIRECTION = 270

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	11.13	0.09	0.04	0.00	0.04	0.00	0.00	0.00	0.21	0.00	11.51
01-02	9.38	0.98	0.30	0.17	0.04	0.00	0.00	0.00	0.00	0.00	10.87
02-03	1.75	0.77	0.26	0.08	0.04	0.00	0.00	0.00	0.00	0.00	2.90
03-04	0.38	0.47	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.94
04-05	0.00	0.04	0.00	0.00	0.04	0.04	0.00	0.00	0.00	0.00	0.13
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	22.24	2.34	0.54	0.30	0.17	0.04	0.00	0.00	0.21	0.00	

PRESQUE ISLE DEEP WATER

CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD

WAVE DIRECTION = 300

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	7.08	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	7.25	
01-02	6.82	0.98	0.34	0.04	0.04	0.00	0.00	0.00	0.00	0.00	8.23	
02-03	0.98	0.68	0.17	0.04	0.00	0.00	0.00	0.00	0.00	0.00	1.88	
03-04	0.13	0.09	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	15.00	1.88	0.64	0.09	0.04	0.00	0.00	0.00	0.00	0.04		

PRESQUE ISLE DEEP WATER
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 330

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	6.44	0.21	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00		6.74
01-02	5.67	0.47	0.04	0.09	0.00	0.00	0.00	0.00	0.00	0.03		6.35
02-03	0.26	0.09	0.13	0.09	0.00	0.00	0.00	0.00	0.00	0.00		0.55
03-04	0.04	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.13
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	12.40	0.85	0.25	0.17	0.00	0.00	0.00	0.00	0.00	0.06		

PRESQUE ISLE DEEP WATER

CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD

WAVE DIRECTION = 0

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	5.75	0.26	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00		6.05
01-02	3.20	0.34	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00		3.58
02-03	0.21	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00		0.30
03-04	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.09
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	9.16	0.73	3.04	0.09	0.00	0.00	0.00	0.00	0.00	0.00		0.00

PRESQUE ISLE DEEP WATER

CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD

WAVE DIRECTION = 30

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	7.84	0.17	0.04	0.04	0.00	0.00	0.00	0.00	0.04	0.04	8.18
01-02	4.35	0.51	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	4.90
02-03	0.26	0.13	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	12.45	0.81	0.13	0.08	0.00	0.00	0.00	0.00	0.04	0.04	

PRESQUE ISLE DEEP WATER

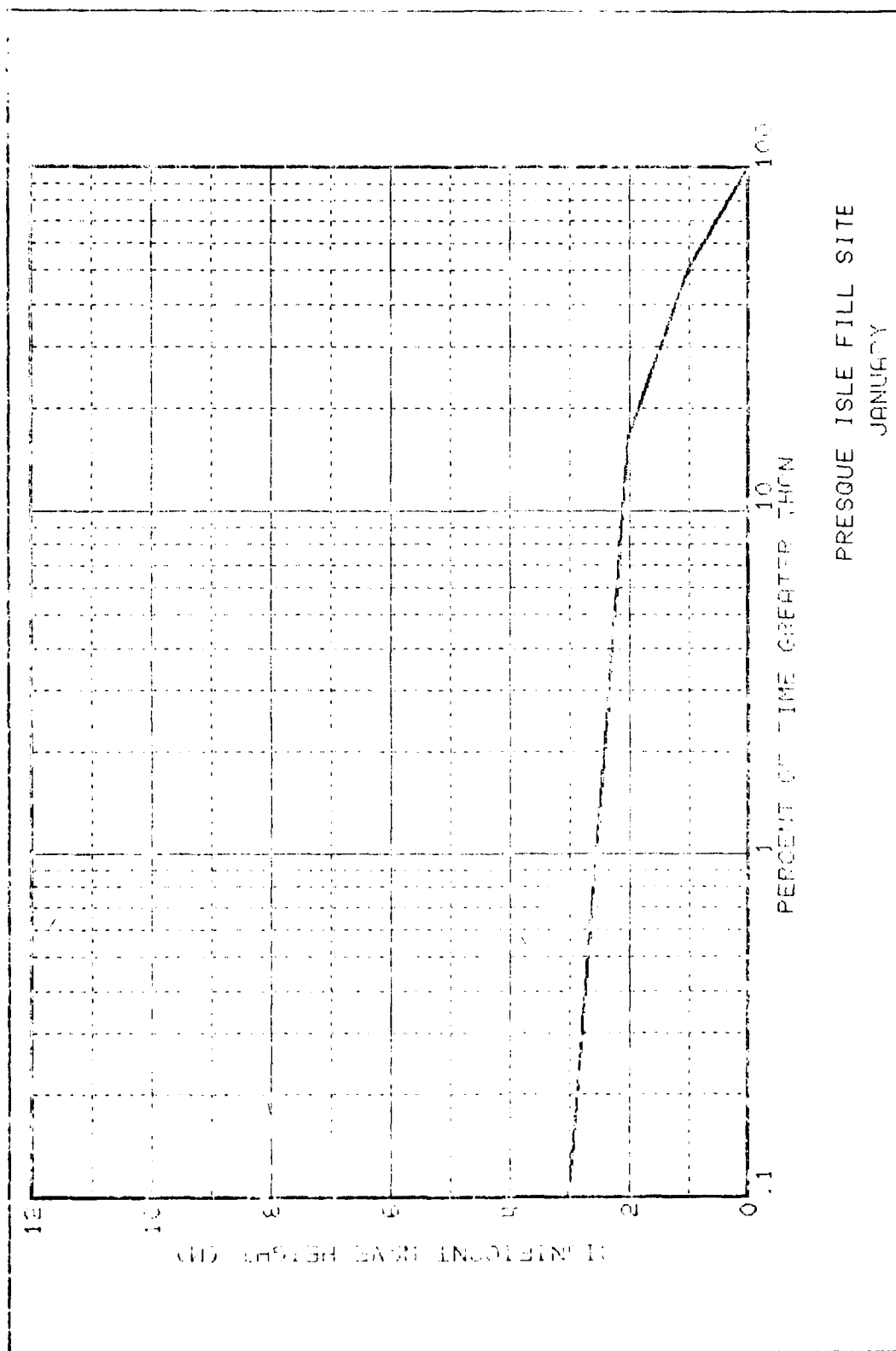
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD

WAVE DIRECTION = 60

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	9.68	0.21	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.04		9.97
01-02	6.22	0.50	0.26	0.04	0.00	0.00	0.00	0.00	0.00	0.00		7.12
02-03	0.77	0.34	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00		1.29
03-04	0.09	0.09	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.21
04-05	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.04
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	16.75	1.24	0.47	0.10	0.00	0.00	0.00	0.00	0.00	0.04		

PRESQUE ISLE FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JANUARY

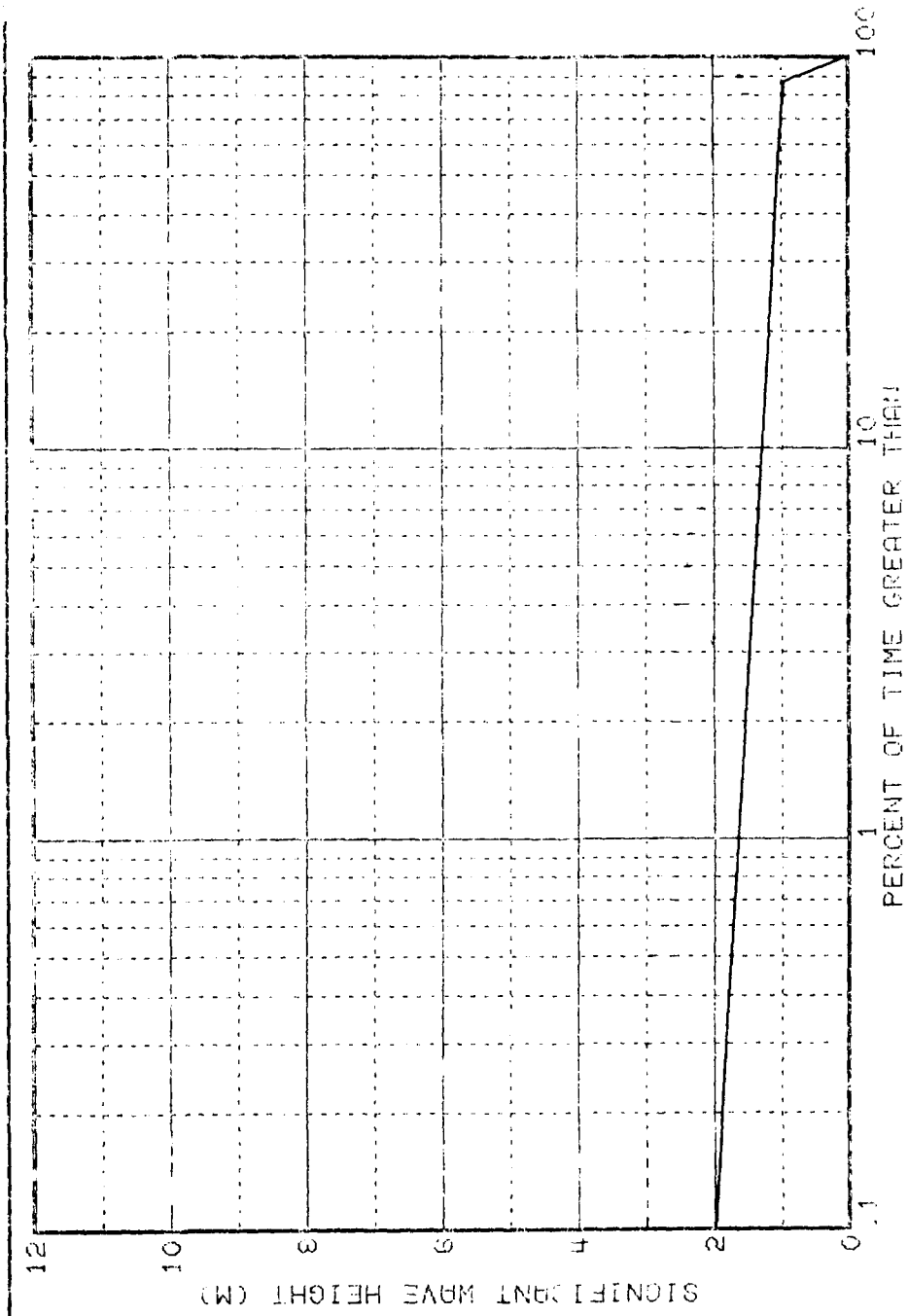
HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	49.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.36
01-02	33.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.97
02-03	0.00	16.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.67
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	83.33	16.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00



PRESQUE ISLE FILL SITE
JANUARY

PRESQUE ISLE FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR FEBRUARY

HEIGHT (M)	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	TOTAL
00-01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01-02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.26	12.26
02-03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	87.04	87.04
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	101.30	101.30



PRESQUE ISLE FILL SITE
FEBRUARY

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ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG MS F/G 8/3
BEACH NOURISHMENT TECHNIQUES, REPORT 4. WAVE CLIMATES FOR SELEC--ETC(U)
APR 81 D L DURHAM, L Z HALES, T W RICHARDSON
WES-TR-H-76-13-4-APP

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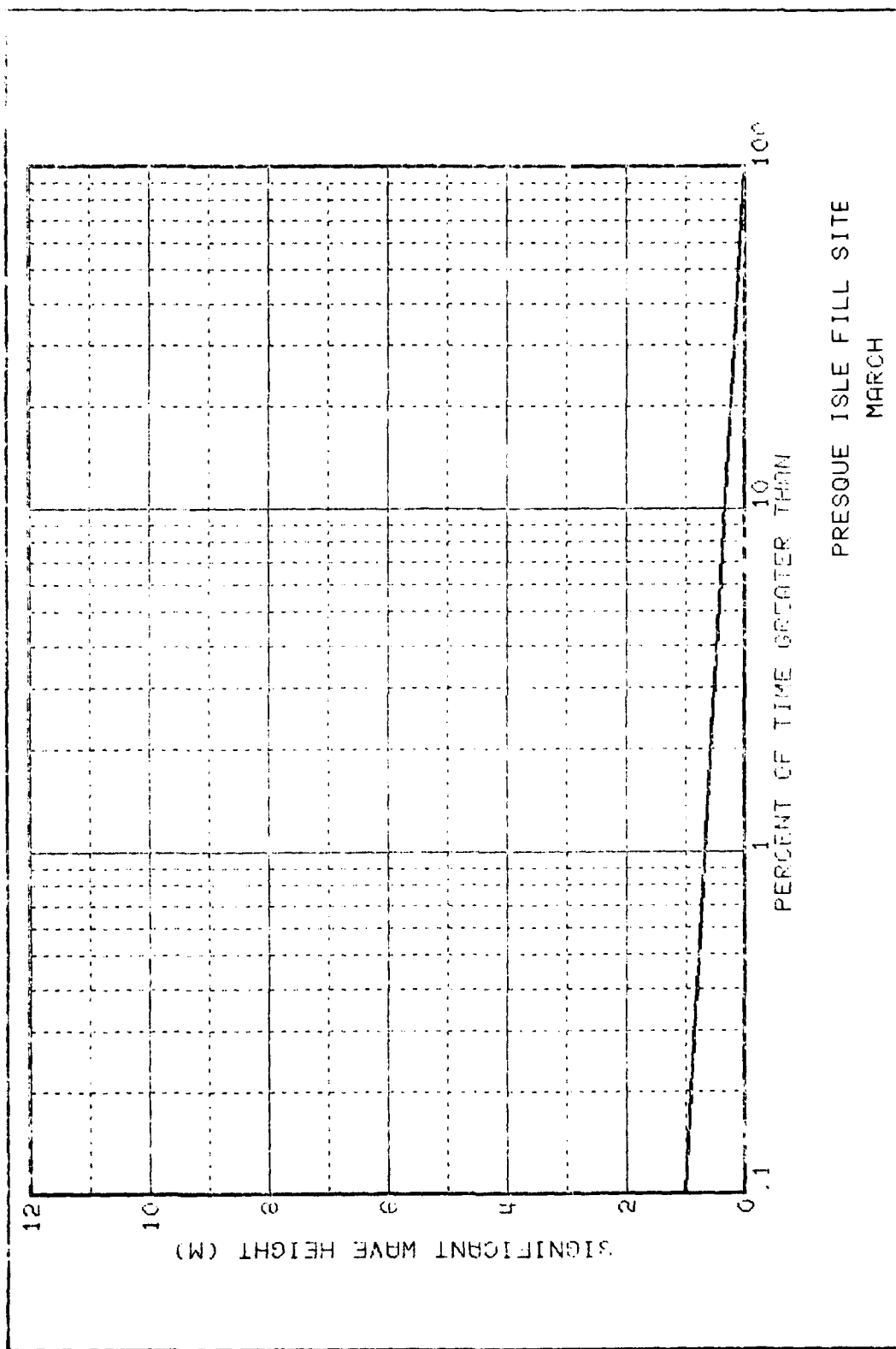
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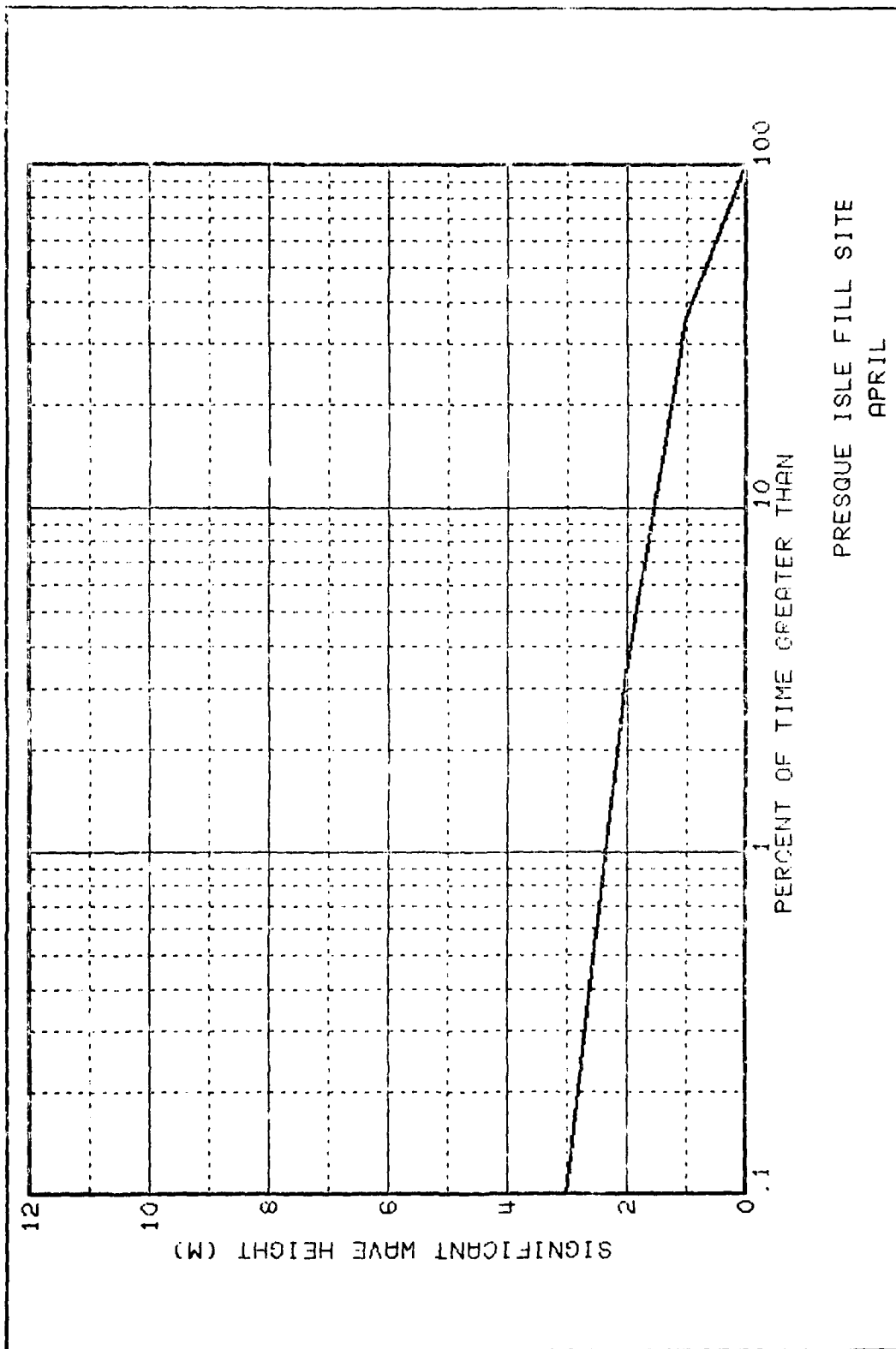
PRESQUE ISLE FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MARCH

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
01-02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02-03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00



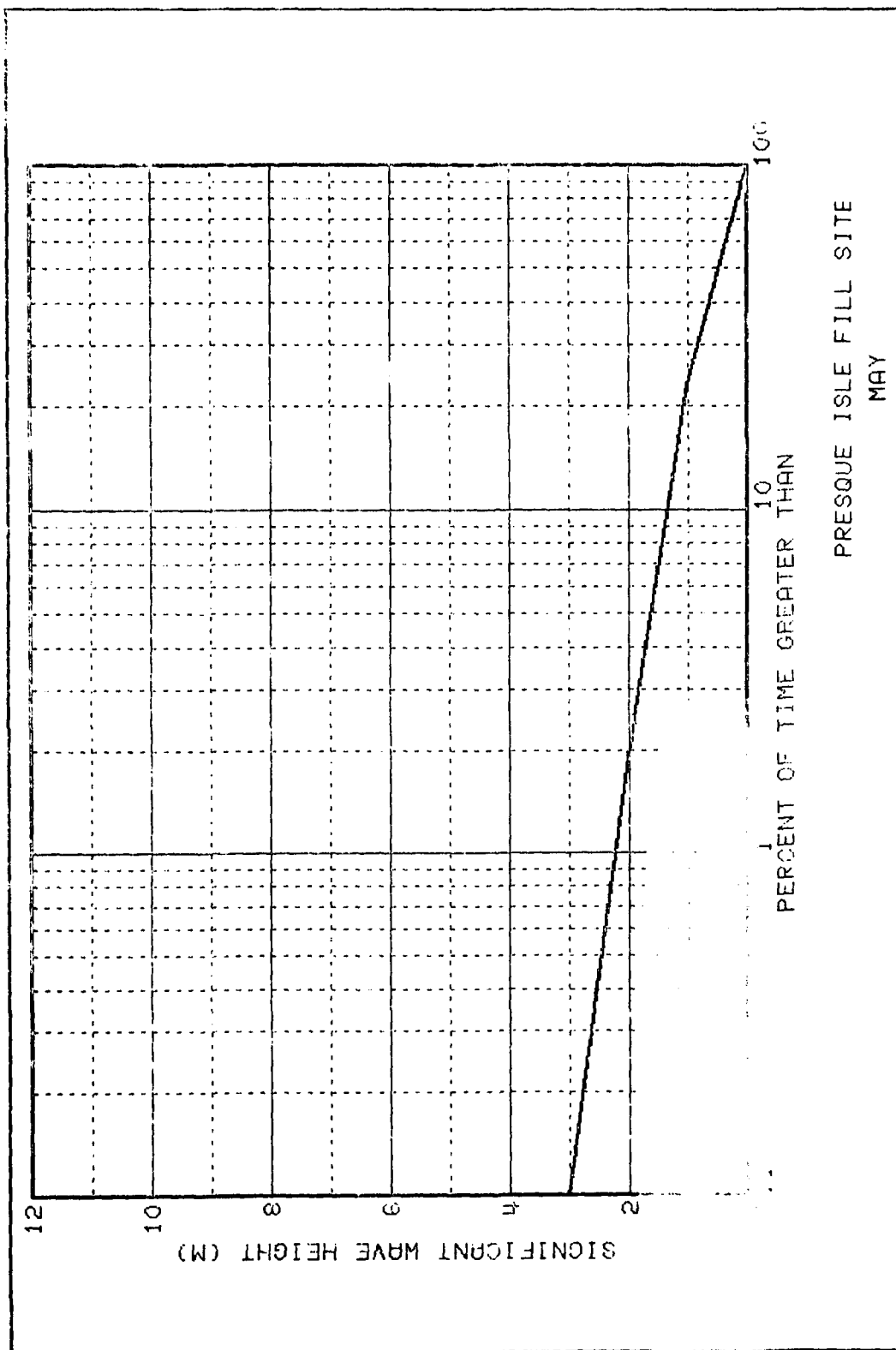
PRESQUE ISLE FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR APRIL

HEIGHT (M)	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	TOTAL
00-01	63.46	0.00	0.00	0.74	0.00	0.00	0.00	0.00	0.00	0.00	64.20
01-02	30.04	2.34	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	32.44
02-03	3.32	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.36
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	96.82	2.39	0.00	0.74	0.00	0.00	0.00	0.00	0.00	0.00	99.65



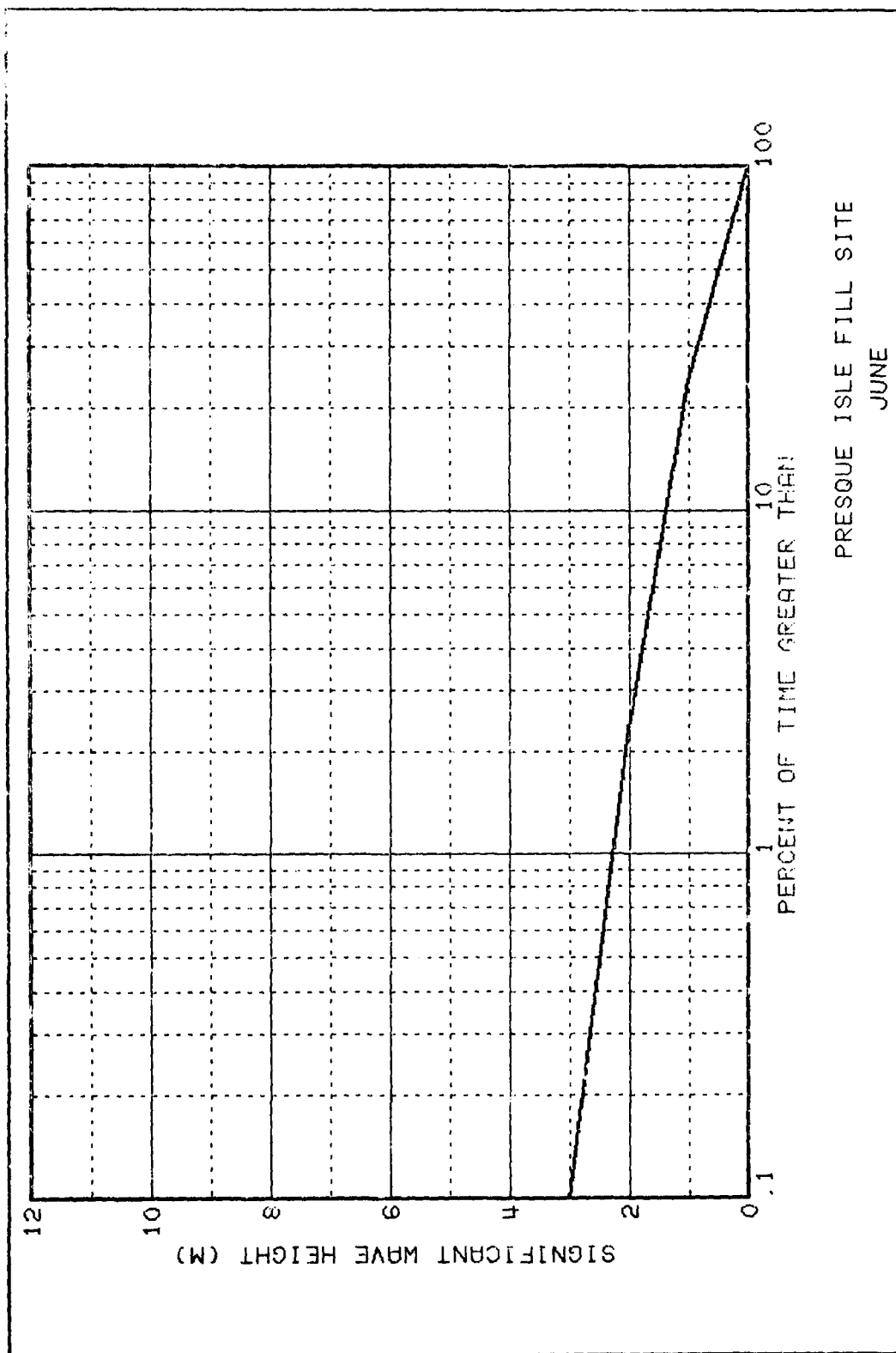
PRESQUE ISLE FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR MAY

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	74.13	2.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76.72
01-02	19.27	1.66	0.00	0.23	0.10	0.00	0.00	0.00	0.00	0.00	0.00	21.26
02-03	0.47	0.94	0.00	0.14	0.37	0.00	0.00	0.00	0.00	0.00	0.00	1.92
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	92.87	5.19	0.00	0.47	0.47	0.00	0.00	0.00	0.00	0.00	0.00	



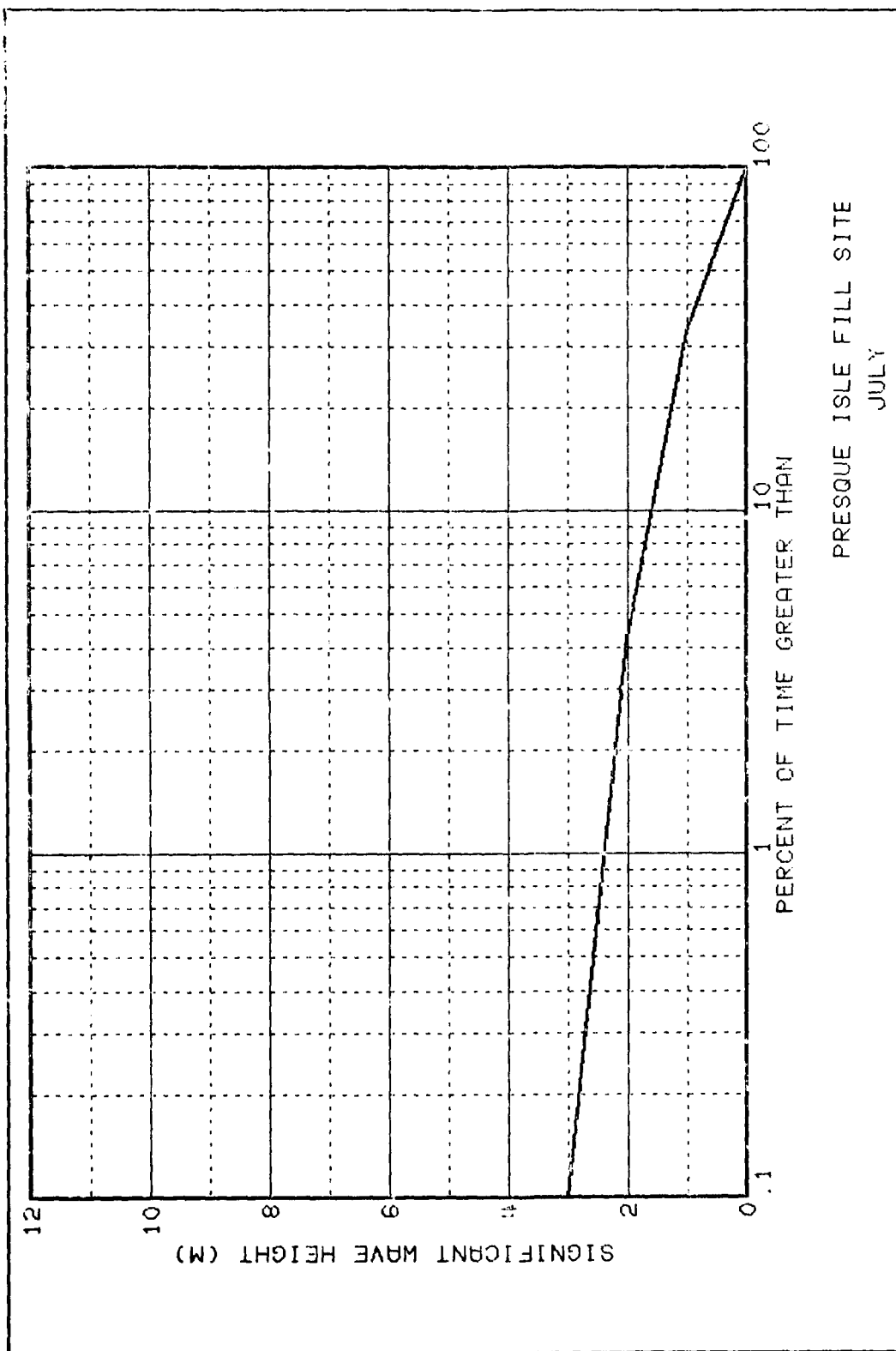
PRESQUE ISLE FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JUNE

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	72.13	2.73	0.26	0.32	0.00	0.00	0.00	0.00	0.49	0.26		76.17
01-02	17.88	1.76	1.16	0.32	0.00	0.00	0.00	0.00	0.26	0.12		21.43
02-03	0.67	0.74	0.82	0.11	0.00	0.00	0.00	0.00	0.00	0.00		2.34
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	90.67	5.22	2.29	0.75	0.00	0.00	0.00	0.00	0.75	0.27		



PRESQUE ISLE FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR JULY

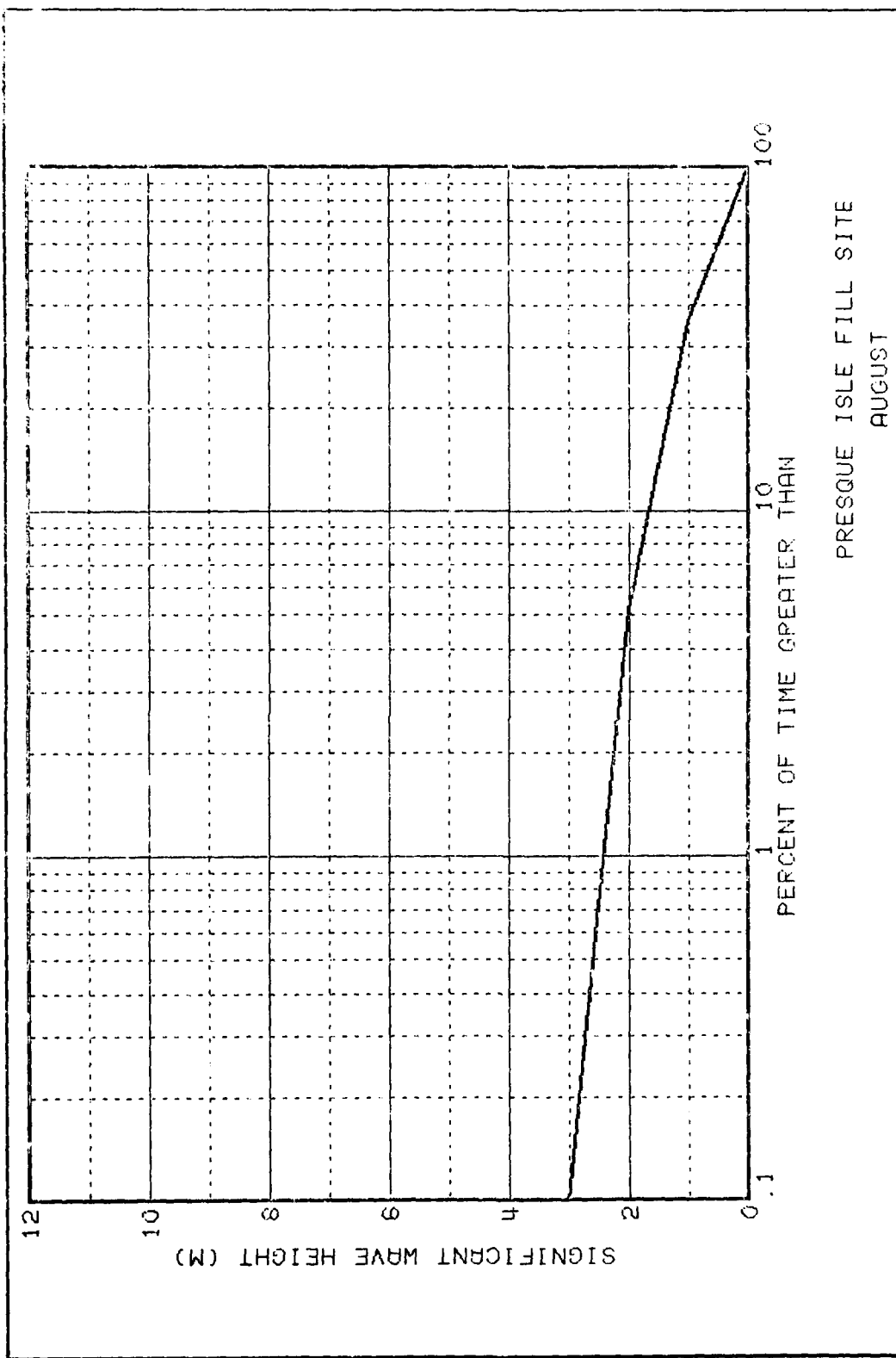
HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	64.15	2.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	66.80	
01-02	25.99	2.62	0.13	0.20	0.00	0.00	0.00	0.00	0.00	0.00	28.94	
02-03	2.40	1.51	0.21	0.14	0.00	0.00	0.00	0.00	0.00	0.00	4.26	
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	92.54	5.44	0.34	0.34	0.00	0.00	0.00	0.00	0.00	0.34		



PRESQUE ISLE FILL SITE

CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR AUGUST

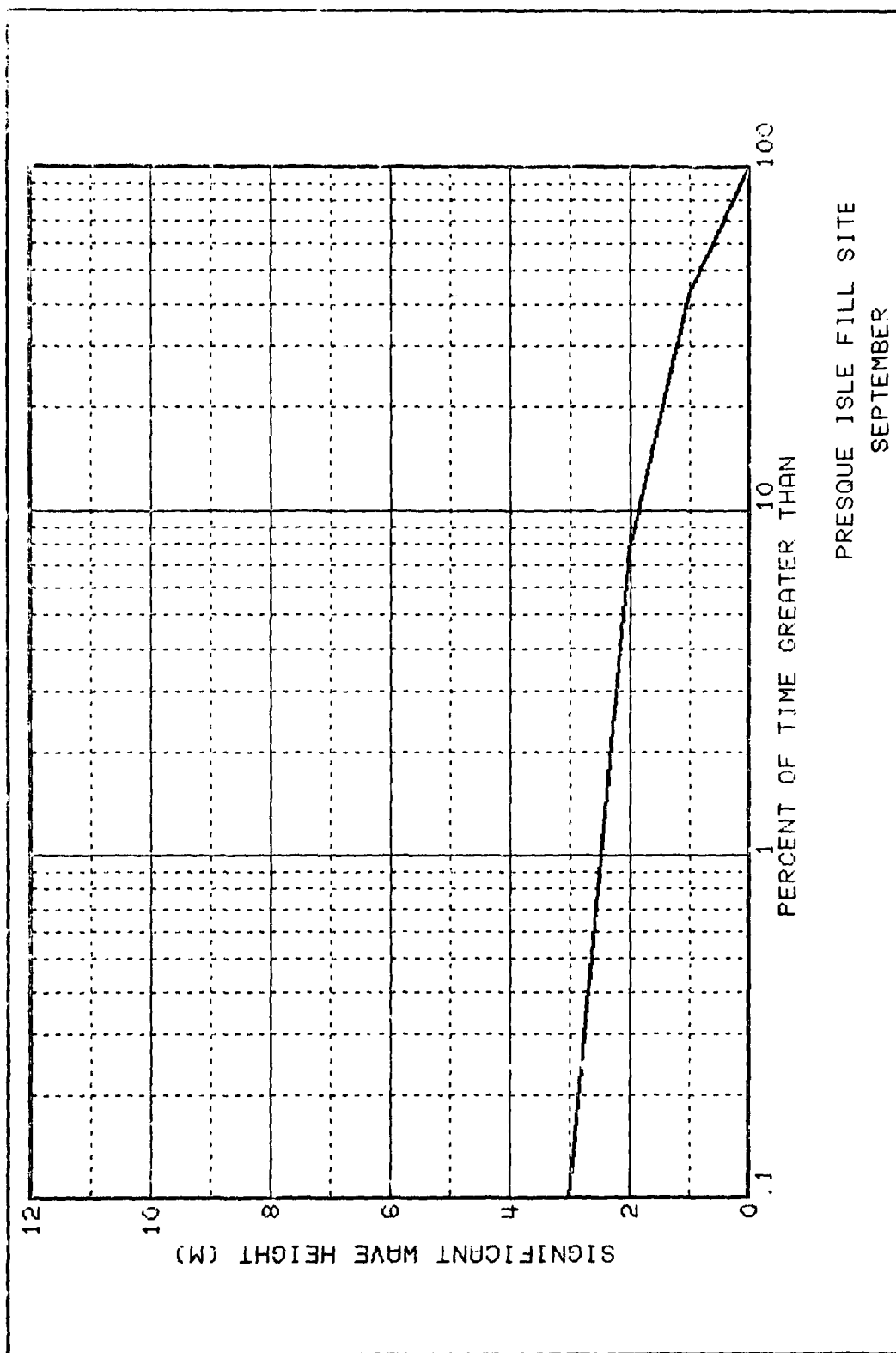
HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	61.56	1.73	0.33	0.00	0.00	0.00	0.00	0.00	0.78	0.00	64.40
01-02	25.55	3.77	0.60	0.00	0.00	0.00	0.00	0.00	0.54	0.00	30.46
02-03	2.56	0.44	1.38	0.66	0.00	0.00	0.00	0.00	0.00	0.00	5.14
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	89.77	5.94	2.31	0.66	0.00	0.00	0.00	0.00	1.32	0.00	



PRESQUE ISLE FILL SITE

CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR SEPTEMBER

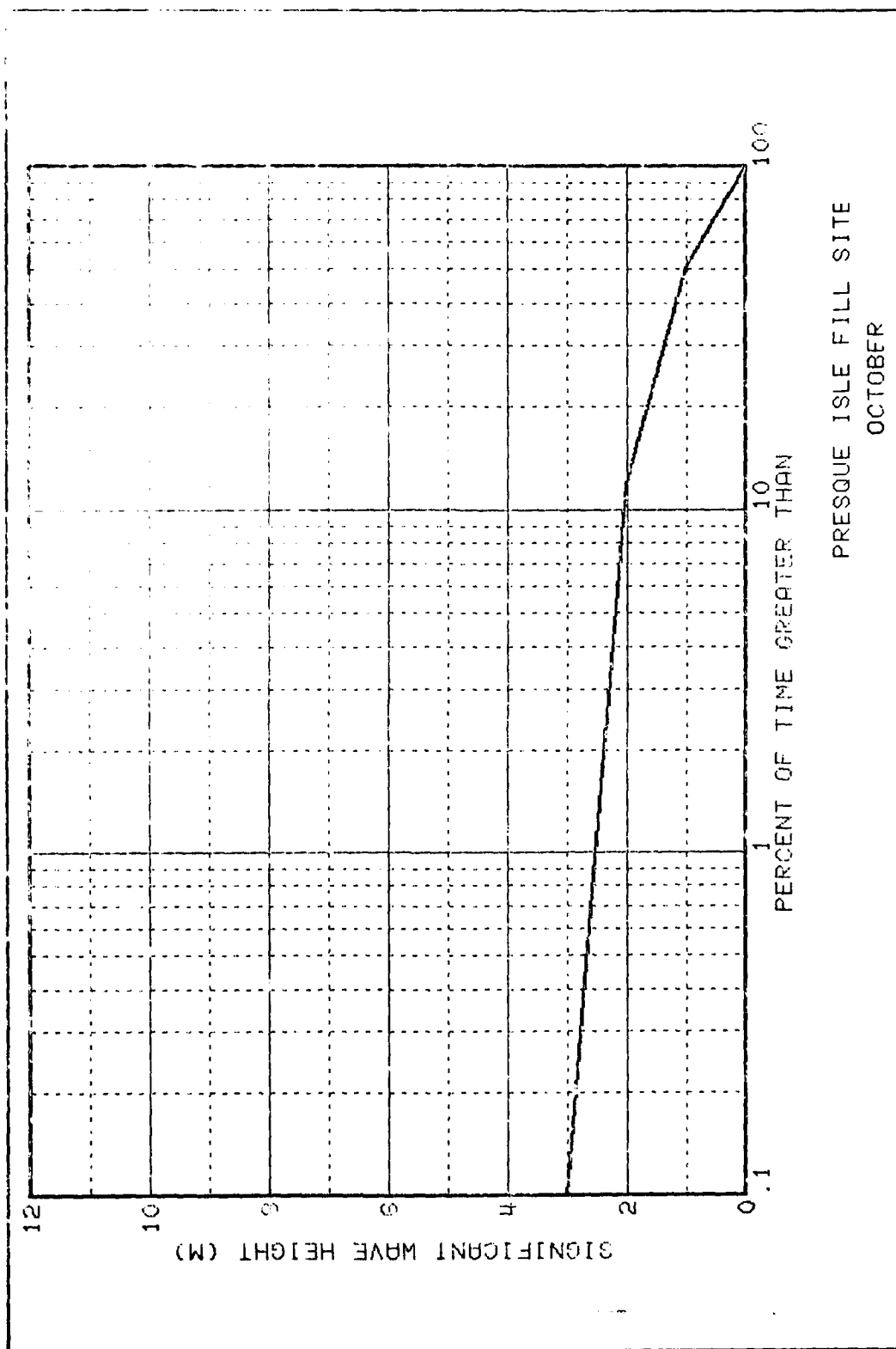
HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	54.12	2.00	1.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57.26
01-02	29.48	4.50	0.81	0.20	0.00	0.00	0.00	0.00	0.00	0.00	35.00
02-03	3.77	3.06	0.43	0.49	0.00	0.00	0.00	0.00	0.00	0.00	7.74
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	87.37	9.56	2.39	0.69	0.00	0.00	0.00	0.00	0.00	0.00	



PRESQUE ISLE FILL SITE

CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR OCTOBER

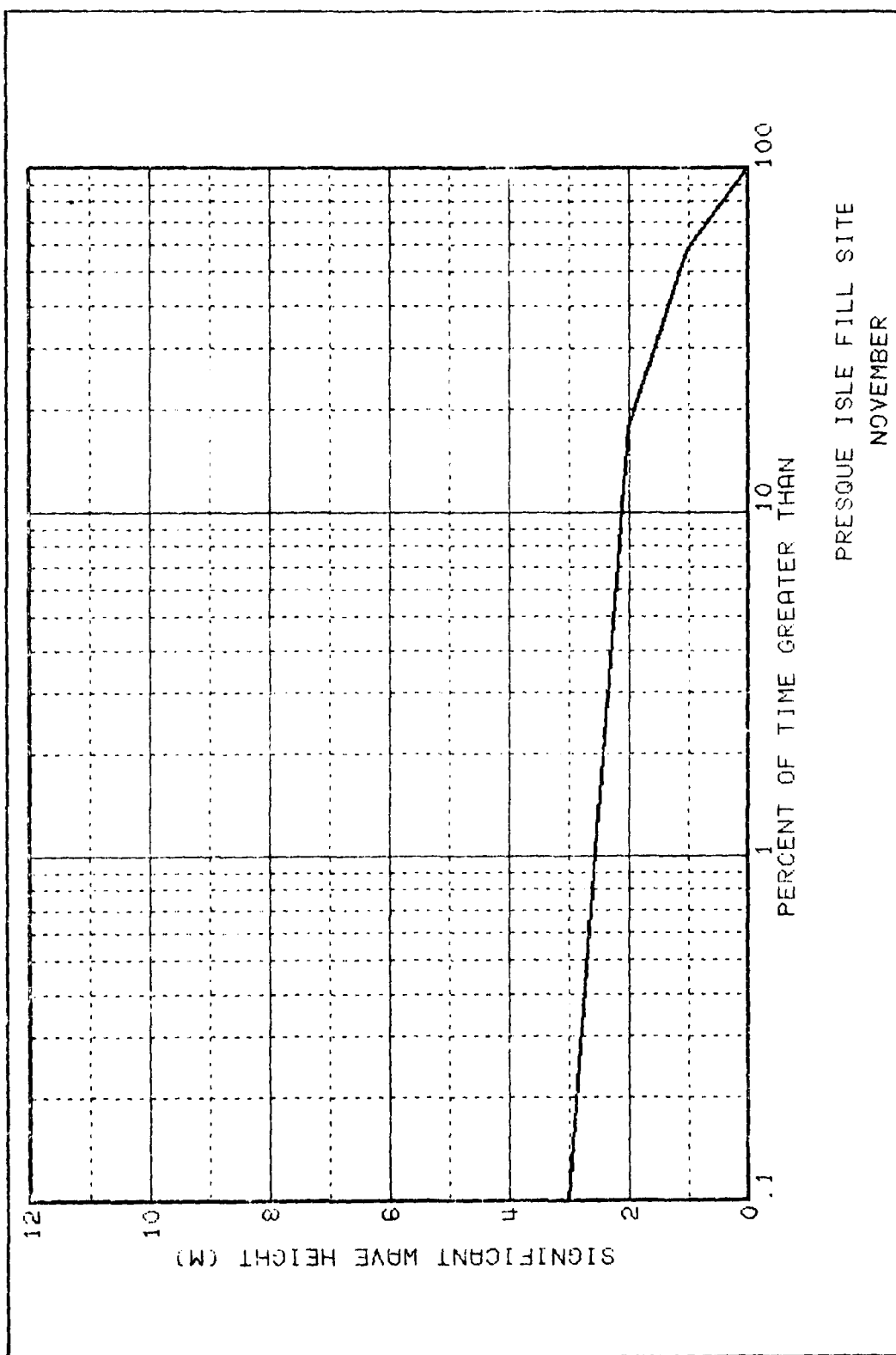
HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	47.90	0.58	0.47	0.12	0.21	0.00	0.00	0.00	0.00	0.20		49.40
01-02	32.19	3.60	2.00	0.50	0.14	0.00	0.00	0.00	0.00	0.15		38.58
02-03	5.82	2.86	1.75	1.49	0.00	0.00	0.00	0.00	0.00	0.00		11.92
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
TOTAL	85.92	7.04	4.23	2.11	0.35	0.00	0.00	0.00	0.00	0.00		99.65



PRESQUE ISLE FILL SITE
OCTOBER

PRESQUE ISLE FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF NAIVE HEIGHT AND PERIOD FOR NOVEMBER

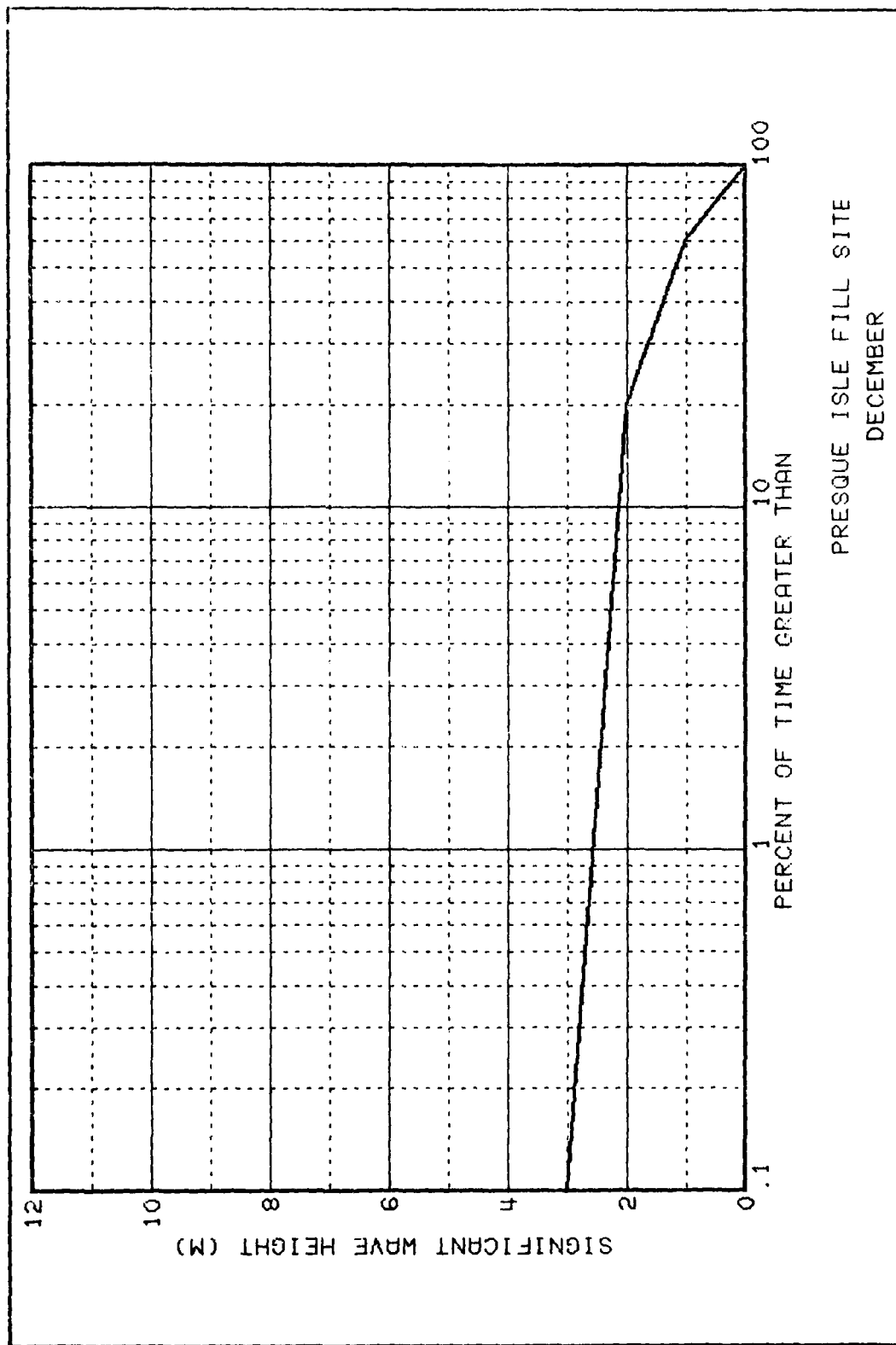
HEIGHT (M)	<5-6	6-9	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	TOTAL
00-01	40.45	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.43
01-02	35.14	4.09	0.53	0.14	0.00	0.00	0.00	0.00	0.00	0.00	40.80
02-03	5.00	7.61	3.20	0.85	0.50	0.25	0.00	0.00	0.00	0.00	17.85
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	81.59	12.68	3.73	0.83	0.50	0.25	0.00	0.00	0.00	0.00	97.17



PRESQUE ISLE FILL SITE

CUMULATIVE SEP / SKEW FREQUENCIES OF WAVE HEIGHT AND PERIOD FOR DECEMBER

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	33.38	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.38
01-02	35.02	3.35	0.25	0.47	0.32	0.00	0.00	0.00	0.00	0.00	40.71
02-03	0.78	7.90	1.73	0.20	0.35	0.00	0.00	0.00	0.00	0.00	19.01
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	84.46	12.17	2.03	0.58	0.58	0.00	0.00	0.00	0.00	0.00	



PRESQUE ISLE FILL SITE
DECEMBER

PRESQUE ISLE FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 270

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	11.13	0.07	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.22
01-02	9.38	0.58	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.08
02-03	2.13	1.69	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.31
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	22.64	2.34	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

PRESQUE ISLE FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 300

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	7.44	0.12	0.00	0.00	0.03	0.00	0.00	0.00	0.12	0.02	7.72	
01-02	6.56	0.36	0.24	0.06	0.05	0.00	0.00	0.00	0.09	0.02	7.86	
02-03	1.00	0.30	0.40	0.32	0.14	0.04	0.00	0.00	0.00	0.00	2.80	
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	15.00	1.00	0.64	0.38	0.21	0.04	0.00	0.00	0.21	0.04		

PPESQUE ISLE FILL SITE

CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD

WAVE DIRECTION = 330

HEIGHT (M)	PERIOD (SEC)										TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	
00-01	5.74	0.21	0.07	0.04	0.00	0.00	0.00	0.00	0.00	0.00	7.05
01-02	5.40	0.45	0.08	0.05	0.00	0.00	0.00	0.00	0.00	0.01	5.93
02-03	0.27	0.20	0.14	0.16	0.00	0.00	0.00	0.00	0.00	0.07	0.85
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	12.40	0.85	0.30	0.26	0.00	0.00	0.00	0.00	0.00	0.08	

PPRESQUE ISLE FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 0

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	16.12	0.56	0.04	0.04	0.00	0.00	0.00	0.00	0.03	0.03	16.81	
01-02	5.33	0.78	0.00	0.04	0.00	0.00	0.00	0.00	0.01	0.01	6.17	
02-03	0.16	0.20	0.09	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.46	
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL	21.61	1.54	0.13	0.08	0.00	0.00	0.00	0.00	0.04	0.04		

PRESQUE ISLE FILL SITE
CUMULATIVE SEA / SNELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 30

HEIGHT (M)	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22	TOTAL
00-01	15.19	0.66	0.13	0.01	0.00	0.00	0.00	0.00	0.00	0.04	15.04
01-02	1.54	0.53	0.23	0.09	0.00	0.00	0.00	0.00	0.00	0.00	2.30
02-03	0.02	0.04	0.11	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.20
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	16.75	1.24	0.47	0.13	0.00	0.00	0.00	0.00	0.00	0.04	

PRESQUE ISLE FILL SITE
CUMULATIVE SEA / SWELL FREQUENCIES OF WAVE HEIGHT AND PERIOD
WAVE DIRECTION = 60

HEIGHT (M)	PERIOD (SEC)											TOTAL
	<5-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	>22		
00-01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01-02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02-03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03-04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04-05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05-06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06-07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07-08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
08-09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

In accordance with letter from DAIN-RDC, LAEN-ASI dated 22 July 1977, Subject: Facsimile Catalog Cards for Laboratory Technical Publications, a facsimile catalog card in Library of Congress MARC format is reproduced below.

Durham, Donald L.

Beach nourishment techniques : Report 4 : Wave climates for selected U.S. Offshore Beach Nourishment Projects : Appendixes A-K / by Donald L. Durham, Lyndell Z. Hales, Thomas W. Richardson (Hydraulics Laboratory, U.S. Army Engineer Waterways Experiment Station.) -- Vicksburg, Miss. : The Station, 1981.

407 p. in various pagings : ill. ; 27 cm. --

(Technical report / U.S. Army Engineer Waterways Experiment Station ; H-76-13, Report 4, App. A-K.)

Cover title.

"April 1971."

"Prepared for Office, Chief of Engineers, U.S. Army."

1. Beach erosion. 2. Dredging. 3. Water waves.
I. Hales, Lyndell S. II. Richardson, Thomas W.
III. United States. Army. Corps of Engineers. Office
of the Chief of Engineers. IV. United States. Army

Durham, Donald L.

Beach nourishment techniques : Report 4: App. A-K : ... 1981.
(Card 2)

Engineer Waterways Experiment Station. Hydraulics Laboratory. V. Title VI. Series: Technical report (United States. Army Engineer Waterways Experiment Station) ; H-76-13, Report 4, App. A-K.
TA7.W34 no.H-76-13 Report 4 App. A-K

